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## PREFACE TO SECOND EDITION.

THIS little book has been a great help to people keeping and breeding their own ducks, turkeys and pigeons. In these days of high price for all food-stuff people, who are able to do so, should keep a large number of pigeons and ducks for the use of the table. If kept properly they will cost little and give good returns. Where there are extensive grounds guinea-fowls can be kept very profitably.

I hope people, especially those living in the Mofussil, will be helped in their industry by this book.

ISA TWEED.

1920.



## PREFACE TO FIRST EDITION.

DURING the past few years I have received numerous letters asking for information about the management and breeding of ducks, geese, turkeys, rabbits, etc. The majority of people seem to think that ducks and geese need no special care, and that it is the easiest thing in the world to rear the young birds ; after several failures and disappointments they write to me complaining of, what they call, their "bad luck," and wish me to tell them what has caused their *luck* to go bad.

In most cases failure is due to the wrong conditions under which the stock birds are kept, or to the wrong method of feeding and housing of the young birds. It has been impossible for me to answer all the enquiries I have received. My life is a busy one and I have very little time for writing letters, so I have been compelled to write this book. All persons interested in the subjects treated of in this book will find the information they need. If they follow the instructions I have

given, they may depend upon succeeding in their efforts.

ISA TWEED.

1901.



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BENG



# INDIAN HANDBOOK

OF

DUCKS, GEESE, TURKEYS, GUINEA-FOWLS,  
PEA-FOWLS AND RABBITS.

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## CHAPTER I.

### KEEPING DUCKS.

THE people of India raise a large number of ducks for the market. High caste Hindoos and Mahomedans as well as Christians eat ducks and ducks' eggs. But Indians adopt no proper methods for breeding and rearing, and the consequence is that most of the ducks we see in this country are deteriorated diminutive specimens, and the ducklings are very delicate and difficult to rear.

Europeans in the Mofussil have to depend to a great extent upon fowls and ducks for their meat supply, and are obliged to keep a large stock for their own use. The small country duck is plentiful and cheap enough it is true, but there is no reason why better birds should not be kept nor why the common duck should not be improved. Breeding and rearing ducks in India is not at all a difficult matter, and it is very easy indeed to keep

them. The construction of a proper house does not cost much, and food grain is cheap, land is cheap and there are numerous tanks and ponds, so that in India we have every facility for keeping and rearing ducks.

Ducks will thrive on any soil so long as they have access to water. A running stream is certainly the best for them, but any tank or pond will do so long as it does not run dry in the hot weather. Even where there are no tanks and ponds ducks can be successfully reared for the table if they are given a large vessel with water in which they can bathe. The water should be renewed three times a day.

The initial outlay for a first class breeding pen of ducks will probably not be a small item, good birds of first class breeds cannot be had for nothing ; though the price of a drake and four ducks may be something between twenty-five and one hundred rupees, that amount of money will be recovered four times over in twelve months by the sale of surplus stock, and the stock reserved will be sufficient to increase the breeding pens fourfold.

## CHAPTER II.

### DUCK-HOUSE AND YARD.

THE Duck-House should always be built on the banks of a tank, or as near a tank as possible on rather high ground. There is no gainsaying the fact that ducks will not breed properly unless they have a tank or large pond to which they can have frequent access. Any sort of a tank will do so long as there is water in it all through the year. A house should be built as near this tank as possible.

Either a pucca, thatch or wood house will do, but the floor of the house must be pucca. A house twelve feet long, eight feet wide, and eight feet high, will be large enough to accommodate twenty-four large ducks. In building a duck-house it should always be borne in mind that ducks soil their house very much, and they should never be crowded together. Ample room and proper ventilation are absolutely necessary. Perfect cleanliness must be insisted on. Fowls or other birds must never be kept in the same house with ducks..

The house should face the south and have a wide door frame with half-inch mesh double wire-netting stretched across it. The house should be walled up on the east, north, and west, but there should be an open space about a foot deep all round between the roof and the wall. This

space should be protected by good stout one-inch mesh wire-netting, so as to prevent animals and thieves entering at night. The floor should slope towards the door, so that it can be easily washed and dried. A good layer of clean sand should be placed on the floor and some soft dry straw or grass should be spread over the sand.

**YARD** :—A certain portion of the ground in front of the ducks' house should be enclosed with two-inch mesh wire-netting. An enclosure 20 ft. by 24 ft. will be large enough for twenty-four large ducks. The wire-netting round this enclosure should be six feet high and the top of the entire enclosure should be covered with wire-netting. Unless this is done it will be impossible to prevent crows taking away the eggs from the enclosure. Frequently the eggs will be dropped in the yard in the morning before the ducks are allowed to go out to the tank.

The ducks should be let out into this enclosure early in the morning and fed. They should be kept in until at least 10 o'clock, when they should be allowed to go into the tank.

The floor of the covered run should be covered with a thick layer of sand or earth. The floor should be sloped so that no water may lodge there.

**POND** :—When a tank is not available for the ducks, a pond must be built for them. In such a case the enclosure or yard should be made as large as possible. A yard 25 feet wide and 125 feet long will do for twenty-four ducks. In the centre of this yard a pond 12 ft. by 6 ft. and 3 ft. deep should be built. One side

of the pond should be gradually sloped down from the top of one side to the bottom of the other side so that the birds can walk in and out of the water. This pond should be filled with clean tank water and be cleaned out and re-filled every week. A properly constructed drain should connect with the pond and carry away all the dirty water to a distance from the house and yard. The dirty water should never be thrown in the yard, it is however very good for trees and plants in a garden and should be used for that purpose.

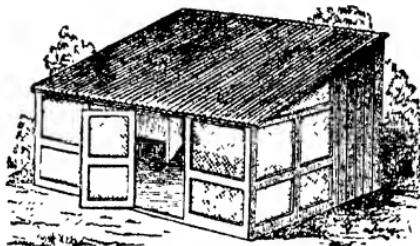
Ducks can be kept in perfect condition in a properly constructed house and yard, but if the house and yard be unsuitable the ducks can never be expected to do well.

When ducks are not allowed to go into a tank, great care should be taken that there be plenty of grass in the run. A lot of gravel and small snails should be placed in the bottom of the pond.

**SHADE** :—Adult ducks need no protection from rain, but they cannot stand the rays of the mid-day sun. If there are not some trees and shrubs in the yard a shed must be provided for shade. The best way to provide shade is to plant graft mango trees, jack fruit trees and some small bushy shrubs in the yard. Lime trees and *neem* trees planted close together afford good shade.

**CLEANLINESS** :—The food and water troughs, the house and the yard, and the pond must be kept absolutely clean. Ducks will not thrive if kept in an unclean condition. The food troughs must be thoroughly cleaned and washed every day. The straw in the house must be

shaken up and put out in the sun to dry, and the house and yard properly swept every day. The house should be properly washed at least once a week. The earth in the yard should be dug up and turned over twice in the year. The duck-pond should be cleaned out and re-filled every week. The straw in the house should be renewed every week or ten days and Phenyle powder should be sprinkled on it to disinfect it and keep down vermin.

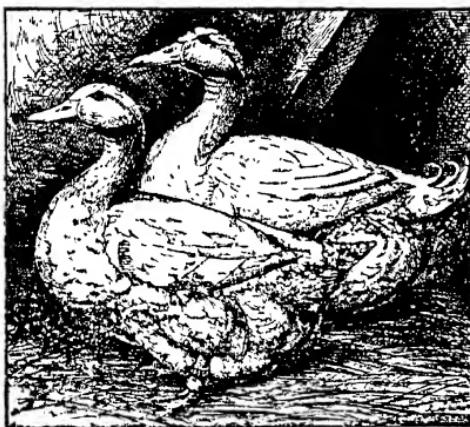


A House for Ducks or Geese.

## CHAPTER III.

### THE DIFFERENT BREEDS OF DUCKS.

THERE are a number of different breeds of ducks, some are very ornamental but of no practical use in a poultry yard. I will describe the seven best breeds, any one of which can be most profitably kept in India.



The Aylesbury Duck.

THE AYLESBURY DUCK.—The Aylesbury duck is named after the town in England where ducks are very largely bred and sold. The Aylesbury is pure white in plumage ; its eyes are black ; its leg orange or light yellow ;

the bill flesh colour, but when exposed to the sun the bill turns yellow. The body is long and flat and the feathers are close.

The Aylesbury is a splendid duck for the table. A fair weight for drakes is seven pounds, and for ducks six pounds. Some birds have weighed a great deal more and some exhibition birds have weighed over twenty pounds a pair. A very large heavy drake is not suitable for breeding. If a duck is very fat her eggs usually are infertile. For breeding purposes select large and active birds between 12 and 24 months old.

The Aylesbury is a good layer. It grows quickly and is very hardy, and easily reared. These birds fetch from



The Pekin Duck : English Type.

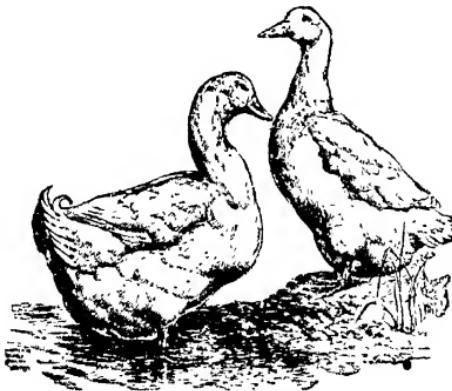
seven shillings to twenty-one shillings each in England. A first class bird for breeding cannot be procured for less

than twenty-one shillings, whereas some birds have been sold for £3 each. Exhibition birds sell for from £3 to £20 each.

In India good birds for breeding may be procured for from five to ten rupees each.

**THE PEKIN DUCK.**—The Pekin duck is creamy white and nearly as large as the Aylesbury. This breed originated in China, as its name implies, but in both England and America it has been bred to its present state of perfection.

The Pekin has yellow bill and legs and is different in shape to the Aylesbury. The body being more upright in carriage, while the feathers are loose like the Cochin fowls. It takes a longer time to mature and is much more

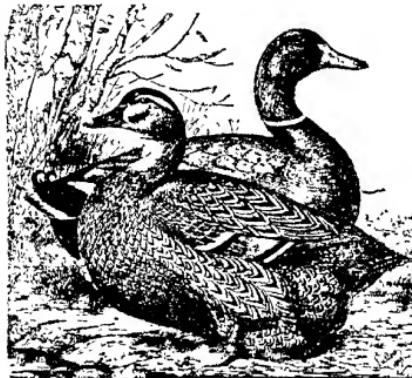


The Pekin Duck: American Type.

easily handled than the Aylesbury: but is not such a good table bird; it is however a better layer.

The proper weight for a drake is seven pounds and a duck six pounds, though a great many do not weigh as much as this. The Pekin is less nervous and more hardy and active than the Aylesbury, and is very easily reared, but does not fetch as much money. A fair price in England is from fifteen to twenty-five shillings for a pair of good birds and from £2 to £3 for a pair of first class breeders. In India good birds may be procured for from five to ten rupees each.

THE ROUEN.—The Rouen is the largest and handsomest of all varieties of ducks. It is bred very largely in England. Although the Rouen is, when mature, the largest of any breed, it takes longer to arrive at maturity

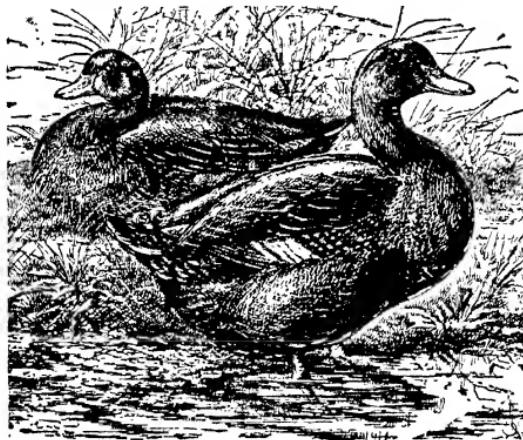


The Rouen.

and does not grow as rapidly as many others. It is not as good a layer as the Pekin nor as good a table bird as the Aylesbury, but it is a useful all round bird. Its flesh is more delicious than that of any other domesticated duck.

The head and back of a Rouen drake are rich sheeny green ; there should be a white ring round the neck ; the breast should be claret colour ; the legs dark orange, and the bill a greenish yellow ; the lower part of the body should be a beautiful grey ; the wings should have a blue and white bar across them.

The duck is different to the drake in colour, but is equally handsome. The illustration will give a good idea of the plumage of these birds. The Rouen will fetch as much money as the Aylesbury, some exhibition

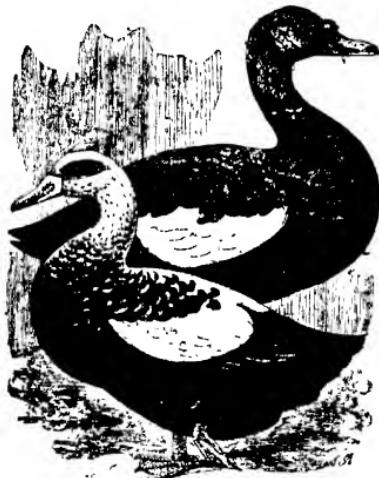


The Cayuga.

specimens have fetched from £10 to £15 each. In India good birds may be procured for from five to ten rupees each.

**THE CAYUGA.**—The Cayuga duck is supposed to be an American breed. Some people believe it originated from a cross between the Rouen, Aylesbury and Indian black duck. However it originated, it cannot be denied that it is a very fine duck indeed. It is black throughout with a lustrous green shade on the head, back, neck and wings. The head should be large and round ; bill wide and flat and of a sooty colour ; the legs and feet strong and sooty in colour.

The Cayuga is a very good layer and excellent table bird, the flesh being very sweet. It is almost the size of the Aylesbury. It will fetch as much money as the Pekin.



The Muscovy.

The breed is becoming very popular in England but there are not many in India. The birds obtainable in

England are said to be better and larger than those that are to be had in America. It will be worth the while of some fancier to import a few good Cayugas and raise a large number of young ones for sale as breeding stock. Good birds should fetch from five to ten rupees each in India.

THE MUSCOVY.—The Muscovy is supposed to be a South American bird, but is very common in India and is too well known to need any minute description. They are large birds, the drake being very much larger than the duck and weighs from 7 to 9 pounds, while the duck weighs from 4 to 5 pounds. The Muscovy is a fairly good layer and a good table bird. It is easily reared and very hardy when mature, but will not thrive in confinement.

The Muscovy is found in all colours—pure white, black, white and black, white and brown or grey. The pure white are the nicest of the lot. This bird can be procured in nearly all parts of India for from five to ten rupees a pair. There is one thing against this breed, the drake is very quarrelsome and will make it very unpleasant for the other inmates of the poultry yard. If kept separate, they do very well.

THE INDIAN RUNNER.—The Indian Runner is supposed to be of Indian origin, a statement, the truth of which I very much doubt. I believe it has been originated from a cross between the Pekin drake and the common Indian duck. I have come across some ducks of this type in Calcutta. They were called Bombay ducks.

The Indian Runner is smaller than either the Aylesbury or Pekin, and has a long round body, a long neck, and is tightly feathered and very erect in its carriage. The drake should weigh from 4 to 6 pounds and the duck about 4 pounds. They are light brown and white or grey, but some are pure white.

Indian Runners are very active in their habits, and have a running (hence the name) rather than a waddling motion. They are excellent foragers and marvellous layers. The flesh is of fine quality and flavour, but they do not fatten well. They are hardy and easy to rear and



The Indian Runner.

may be used with great advantage for crossing with the heavier breeds to improve their laying qualities.

This breed does not fetch much money, good birds may be had in India for three to five rupees a pair.

7. ORPINGTON DUCKS.—There are two colours of this variety, the buff and the blue. They are very handsome and most useful birds. They are very hardy, easy to rear, quick in growth, and very active and fertile. These birds were produced by the late Mr. William Cook, of Orpington, England, by crossing together the Aylesbury, Indian Runner, Rouen and Cayugas and also the Pekin. These crosses produced two colours, that were fixed by inbreeding, and now the varieties breed true to type. The Orpingtons are in size and shape between the Aylesbury and Pekin, but excel as layers. They are great foragers and do well with only a small tub of water to bathe in. A few specimens of this breed have been brought to India. They deserve wider attention. In England they fetch the same prices as Aylesburys and Pekins.

8. CROSS-BREEDS :—I have described the seven best breeds of ducks to be found in any part of the world. No better birds could be wished for than these in their pure state. The pure bred birds always give the best results, and I would advise all persons to jealously keep the breeds pure. But there are some people in this world who are never satisfied with what there is, and are always trying to make something new. For the benefit of these people I will here state what crosses produce the best results.

1. The Rouen drake and the Aylesbury or Pekin duck produce large strong birds and good layers. The colour of the cross-breds will be a mixture—some will be a little like the Rouen but most of them will be very mixed. But

the colour will not affect the laying or table qualities of the birds.

2. The Pekin drake and the Aylesbury duck and the Aylesbury drake and Pekin duck will produce large good table birds, and very good layers. Some of the cross-breds will be like the Aylesbury and some like the Pekin. This is the best cross.

3. The Muscovy drake, and the Aylesbury or Pekin duck, will produce good large birds for the table. These cross-breeds will be mules and not breed.

4. The Pekin drake and the Indian Runner duck, or the common Indian duck, will produce birds very much larger and better than the common ducks.

5. The Indian Runner drake and the common Indian duck will produce very fine layers and good table birds.

In order to improve the common country duck, the following plan should be adopted. Put a good strong Indian Runner drake, with four large sized common Indian ducks. Take four large females of this cross, and put them with a medium sized Aylesbury or Pekin drake. The result of these crosses will be large, well formed, hardy ducks, which will make excellent table birds and layers. The drakes of the second cross may be used to put with the common ducks in the villages.

Another plan to improve the Indian duck is to place sixteen large country ducks with four Pekin drakes, and take sixteen ducks of this cross and mate them again to their fathers. This will produce large birds. The ducks of the second cross may be put with Aylesbury drakes.

The Rouen and Aylesbury drakes are too large and heavy to mate with the small country ducks.

One thing must always be borne in mind when crossing different breeds, that is to separate the drake from all the ducks of his own breed, and put him with only ducks of the other breed. If ducks of his own breed are allowed to remain with him he will not pay any attention to the other ducks, and their eggs will be infertile.

## CHAPTER IV.

### SELECTION OF BREEDING STOCK.

No deformed, stunted or sickly bird should be bred from. Select only such birds as have properly matured and are in perfect health and vigour. If the desire is to breed first class pure bred birds, then only such birds should be selected for breeding-stock as are thorough-bred and are of the right shape, size and colour of the breed. Any mistake made in the commencement will be perpetuated in the progeny. In-breeding must be carefully avoided, and the male birds changed every two years.

Ducks begin to lay when between six and eight months old, but I would not breed from birds under twelve months old ; good vigorous birds are fit to breed from until they are four years old. Ducks in the second year make the best breeders.

There should be one drake for every four ducks. If more ducks are allowed to a drake the eggs will not prove very fertile, and if a less number be given the drake will worry the ducks and cause them great injury, and the eggs will not hatch well. It is very advantageous to keep the breeds separate, and not keep more than two drakes and eight ducks in one breeding-pen. If different breeds are kept together, they will not be happy. The different

breeds have different characteristics which are irritating to one another. For instance, the Muscovy is very quarrelsome and will worry all other ducks in the yard. The Indian Runner is a very active and restless bird and will irritate the larger and heavier breeds. When the drakes of one breed are placed with the ducks of another they will not do harm, they soon make friends and settle down to their routine in life.

Ducks love quietness and must always be treated with gentleness and great care. They must never be driven hard or chased about. If they are frightened or made to run fast, the probability is that they will receive some serious internal injury, which will either kill them or else utterly unfit them for breeding. When a duck has to be caught, it should be gently driven into its house and caught there.

Birds for breeding should be mated together as early as possible after they have got over their moult. The drake can be distinguished from the ducks by the curly feather in his tail. In Muscovy drakes, however, this curly feather is absent from the tail. It is possible to distinguish the drake from the ducks before the feathers are grown by the difference in the voices of the sexes. The voice of the duck is very full, and it quacks in such a way that every one can hear it; the drake has a thin, squeaking and almost inaudible voice.

The secret of successful breeding is rigid selection and breeding from only the best. Out of a flock of one hundred ducklings, probably twenty-five will be very

defective and fit only to be killed and used for the table as soon as possible. Out of the remaining seventy-five, only ten will be selected as approaching to anything like perfection and will be reserved for the breeding pen. The remaining ones may be divided into three classes,—twenty good breeders, twenty ordinary breeders, and twenty-five fit only for crossing with country ducks or to be roasted for the table. The ten selected by the owner for breeding stock will be probably worth from ten to twenty rupees each to him ; the twenty good breeders will fetch something like ten rupees a pair ; the ordinary breeders will not command more than five rupees a pair ; and the remaining twenty-five will be worth from two rupees to three rupees a pair. The price of a duck, as the price of everything else, is according to its quality. I have been careful to try and make this point clear, so that the reader in buying or selling ducks may be able to act intelligently and not make a mistake. A famous breeder of ducks in England says :—“ Where there is a flock of well-bred young ducklings, there are usually some, when they get to be about six weeks old, which stand out from the others. That is to say, they are almost half as big again, and are developing a beak perhaps half-an-inch longer than others of the same age. To all appearances they look as though they were going to have an immense frame. These should always be picked out as soon as they begin to show signs that they will develop into large birds. They should be put in a nice roomy place by themselves and fed on good nutritious food. Very often people who go in for showing ducks,

go round looking at flocks of young ones, and pick one or two out of one flock, and one or two out of another. I have known them give as much as thirty shillings each for them. These are the ducks which usually find their way into the show pens. I wish my readers to understand that, however large and good a pen of ducks may be, they will not throw all the offspring as good as themselves; there will be sure to be a few among them much smaller than the parents, though some of them may surpass the old birds both in size and quality.

"There are also freaks of nature in ducks, just the same as there are in many other varieties of the feathered tribes. What I mean by that is, that the feathers in the wings will often turn the wrong way, instead of being close to the body they will often turn outwards. This of course looks very bad. When they come like this they should never be bred from. Some people do breed from them, but when they do the offspring look very unsightly indeed. Occasionally some of them will come with a little bunch of feathers on the top of their heads. If these are bred from again the little top knots increase in size. I have seen a whole family of Aylesburys with quite a crest of feathers upon their heads. The feathers have been about two inches long, like those on a Houdan hen's head. I do not like to see them, as it looks unnatural in a duck. Of course there are people who fancy such ducks, and it is very easy to make a strain of stock ducks•of this kind when a person who has a fancy for them

has one or two sports come with feathers upon their heads."

Ducklings with wing feathers turned outwards can be cured if taken in hand early, and the wing feathers tied up so that they will keep under the wing.

## CHAPTER V.

### EGGS.

IN India ducks commence to lay during the rains, and keep on, with breaks of short intervals, right through until April. All breeds do not lay alike, some will not lay more than 60 eggs in a year, while others will lay 120 eggs in the same time. A duck's egg should weigh from two and-a-half to three ounces. Duck's eggs vary in colour from white to pink and green. The same duck will lay eggs of different colours. This is true of all breeds, every egg a duck lays will not be of the same size. It is no use setting eggs under two and-a-half ounces in weight, or those very much above three ounces.

Ducks lay their eggs at night and in the morning up to about 10 A.M. They have a bad habit of dropping their eggs anywhere on the ground or in the water, and if not carefully watched many eggs will be lost. There should be generally, when in full lay, an egg from every bird, failing which the ducks may be confined a little longer. Irregularity in laying is a tolerably sure sign of a duck being out of health or condition. Plenty of comfortable nests of clean, dry straw or grass will do much to persuade them to lay in the proper places. Unless care be taken, crows will carry away eggs from the duck's house and

yard. For this reason it is very advisable to have a covered yard or run for ducks. Ducks should be confined to their yard until 10 A.M., when they will have laid all the eggs they will that day. When ducks are overfed and become too fat, they cease to lay, and become diseased.

Sound eggs from pure bred first class stock can be sold for from three to six rupees a dozen. Common duck's eggs fetch four and-a-half to nine annas a dozen.

## CHAPTER VI.

### FOOD FOR STOCK DUCKS.

THE feeding of ducks is not at all a difficult matter. Ducks, as a rule, are gross feeders and will eat anything they can pick up. It is not safe to allow them to eat everything. The food a duck eats very materially affects the flavour and quality of its flesh and eggs, and also the vitality of the ducklings produced from the eggs.

It is very necessary to allow them only such food as will keep them in perfect health and good condition, and will enable them to produce good meat for the table and strong healthy ducklings.

The best food for ducks is wheat-bran, rice-meal (*goora*), ground barley, paddy, and scraps of meat and vegetables.

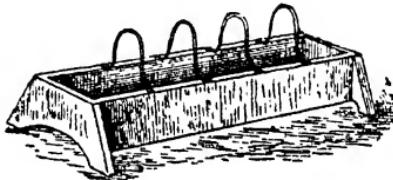
For, say, 24 large ducks you will need the following food :—

Wheat-bran ..	..	One and-a-half seer.
Rice-meal ( <i>goora</i> ) ..	.. , ,	, ,
Ground barley ..	.. , ,	, ,
Paddy ..	.. , ,	, ,

The whole should be properly mixed together with water, until quite sloppy, and then put out in feeding-troughs before the ducks. Sharp flint grit is very essential.

to the health of the duck. The grit must be sharp and should be mixed with the duck's food. A handful will be sufficient for eight or ten ducks. The pieces of grit should not be larger than one-fourth of an inch in diameter.

The above quantities of food are sufficient for one meal for 24 large ducks confined to their yard. When ducks are confined to a yard they need more food than they would if they were allowed to go into the tank and fields and pick up much of their food there. If the ducks are allowed their liberty and pick up part of their food from the tank and grounds around, then the above-mentioned



Feeding-trough.

quantities of food will be sufficient for two feeds, half in the morning and half in the evening. Small ducks will not need as much food as the large ones will.

Ducks in confinement should be fed three times a day, and, at each meal, only as much as they will eat up at once should be given, no food should be allowed to remain in the trough. After the birds have been fed, the troughs should be properly cleaned and clean water put in them for the ducks to drink.

When ducks are not laying they do not need as much food as when they are laying.

When kept confined to the yard ducks require some meat or snails or small fish in addition to the regular supply of food, unless some animal food be provided they will not thrive.

Ducks should never be fed on paddy or rice alone. Wheat-bran and rice-meal with barley and paddy added are the right and proper ingredients for duck's food. Rice-meal or *goora* is the inner red skin on the rice under the husk, when the rice is husked this skin remains on it and is removed by a process of pounding. It is this mealy stuff which the natives call *gora*, or *koora*, that is most excellent for ducks when given mixed with wheat-bran. The outer husk of the paddy is useless.

Green food is very necessary for ducks. When they are kept in confinement, cabbage, onion, and all refuse vegetable from the kitchen garden should be chopped up and added to the regular food. Potatoes should never be given to ducks, but potatoe-peel may be given if cut up fine.

PREPARATION OF FOOD :—The bran, rice-meal, ground barley, paddy and the scraps of meat and vegetables should all be mixed together with boiling water, or else with cold water and cooked for a few minutes. The food should be allowed to cool a little before it is given to the birds. It should always be given in a sloppy condition in shallow troughs or dishes. Care should be taken not to allow any food to lie about in the yard. Clean water should be placed in the water vessels at least three times a day.

## CHAPTER VII.

### HATCHING AND REARING.

HATCHING :—Ducklings can be raised all through the year. The eggs may be set under hens or ducks, or placed in an incubator. I have hatched large numbers of ducklings in incubators. Hens make the best hatchers and mothers for ducklings. My greatest success has been with hens. Only six to eight eggs should be placed under a large hen. It is no use whatever to set small hens. The Game and Chittagong hens make the best mothers for ducklings. Set two or three hens at the same time, and when the ducklings are out, give each hen from six to eight.

The best way to set duck's eggs is as follows :— Procure an earthen *gumlah* about 14 or 15 inches in diameter, and 9 inches deep : put five inches of sifted, clean, dry earth in the *gumlah*, press down the earth with the hand and hollow out the centre ; place about an inch of dry cowdung-ashes over the earth, press down the ashes into the shape of a saucer ; sprinkle a good handful of flower of sulphur over the ashes, and then break up a small quantity of soft, clean, dry hay, and place it over the ashes and sulphur ; press down the hay and sprinkle some insect powder over it. Place the eggs on this nest, and then place a properly cluck hen on the eggs. Keep

the sitting hen in a quiet room where she will not be disturbed by anything ; place some grain and water a few feet from her, so that she can get to it whenever she is inclined for it. The hen will probably get off her nest once or twice a day to feed and exercise.

I have never found it necessary in Bengal to sprinkle the eggs with water. The eggs should be tested on the fourteenth day and not before. Take an egg up in your hand and hold it up against a bright light or the sun, close one of your eyes and look through the egg with the other eye ; if the egg is clear like a new-laid egg, then it is infertile or addled, but if it be dark looking, it is in all probability a sound egg.

Nearly all duck's eggs will take 28 days to hatch ; they are chipped usually on the 27th day. Muscovy duck's eggs take 35 days to hatch ; they generally chip a day or two before that.

When a duck is allowed to sit on eggs, the nest should be made in the same way as mentioned above, only it should be on the ground in a corner of the room, and not in a *gumlah*. The sitting duck should be allowed out every day and regularly supplied with food and water.

The eggs will chip on the 27th day, and when this happens the shell should be removed from above the crack, and the duckling inside allowed air to breathe. If all goes well the ducklings will be out on the 28th day. If it be found that some of the eggs are not chipped on the 28th day, then take a pen-knife and make a small hole on the large end of the egg, make a *small* hole and hold the

egg up to the light and see where the beak of the duckling is, just above the beak make an opening about the size of a two-anna-piece, and replace the egg under the hen. Great care must be taken not to draw blood. The eggs should be carefully watched and examined every few hours, and all the addled ones and those with dead ducklings should be removed and those with live ones left under the hen.

After the eggs are chipped it takes the ducklings from 12 to 36 hours to absorb the remaining yolk for their support immediately after hatching. If it be found that the duckling is unable to break the shell of the egg, a little assistance will be necessary. A small portion of the shell around the chipped part must be gradually removed, and the lining membrane under the shell moistened with a little warm water. As long as there is any blood around the duckling it must not be taken out of the shell, but as soon as all the yolk and blood are absorbed, the top portion of the shell and inner membrane must be removed and the duckling released and placed under the hen, or in the incubator. It needs some experience and great care to perform this operation. The slightest mistake will injure the little thing.

When replacing the eggs under the hen or in the incubator, great care should be taken to place the eggs so that the chipped portion will be turned upwards.

REARING :—After they are out of the shells the ducklings should be allowed to remain under the hen or in the incubator for 24 hours before they are fed, during

this time they will become quite dry and strong. It does positive injury to feed ducklings very soon after they are hatched. Twenty-four hours after they are hatched they should be placed in a clean, dry box or basket and fed. The mother must be fed apart from the young ones. Give her a good feed and plenty of water.

When I raise ducklings in an incubator I always give them to a hen to rear. Ducklings do not thrive in foster-mothers as chickens do.

Ducklings are very stupid little creatures and do not know how to eat the food placed before them, so it is necessary to teach them how to eat. Take equal parts of oatmeal and rice flour, and enough turmeric to give colour, mix with a little milk till quite sloppy, take a clean stiff feather, dip the tip of this feather into this mixture, and lift a small portion of it on the feather, hold the feather to the mouth of the duckling. The little creature will peck at it and soon get some into its mouth. At first it will shake its head and throw out all it gets into its mouth, but in a little while it will learn to swallow. This operation has to be repeated every hour for the first two days. Also place a small shallow vessel, about half an inch deep, near the ducklings, with some clean water in it, sprinkle a little oatmeal over the water; the ducklings will drink the water and pick up the oatmeal.

The ducklings should be placed out on the dry grass with their mother under a small covered run. They are very troublesome the first few days after they are hatched, and it takes a great deal of patience to feed them. After

the fourth or fifth day they give very little bother, for then they are able to eat properly.

For the first week they should be fed on oatmeal, ground rice and milk, with a little turmeric added. The food should be renewed every hour in small quantities. In the second week they should be fed on equal parts of ground wheat, ground barley, ground oats, and ground rice, with some finely chopped meat, all mixed together with milk or hot water; and occasionally a little cooked rice should be given. Cooked rice should be given very sparingly as it causes cramps in ducklings. It would be very much better if the ground wheat, barley, oats, rice and chopped meat could be cooked together and given to them.

In the third week and to the end of the sixth week they should be fed on ground wheat, barley, oats, and rice mixed with hot water an hour before it is given, and chopped meat and snails. These snails are found in the beds of tanks; they should be washed and broken up between two stones before they are given. The large pieces of meat in the shell should be cut small.

After the sixth week the diet should be equal parts of wheat-bran, rice and barley meal or ground paddy mixed with warm water, also meat and vegetables, chopped and cooked, and snails. Sharp flint grit must be given to the ducklings in their food. The grit should be at first sifted through a medium flour sieve, and what is passed through the sieve must be mixed with the food. A tablespoonful will be enough for sixteen ducklings a week

old ; as the birds grow larger, more and larger pieces must be supplied.

During the first week ducklings must be fed every hour. During the second and third week every two hours. From the third to the sixth week every three hours, and thereafter until the tenth week only four times a day. The feeding should be done at regular hours and only as much given at each time as the birds will eat up at once. No food should be allowed to remain with the ducklings. The greatest care must be taken to prevent overfeeding. If young ducklings are allowed to eat too much they are sure to suffer from indigestion and there will be serious trouble.

A little flower of sulphur should be put in the food once a week. This will help the birds to feather properly.

A vessel with drinking water should be kept constantly near the ducklings. The drinking troughs or fountains must be deep enough to permit the ducklings to cover their heads or at least their bills, otherwise their nostrils will get stopped up with shovelling in the mud owing to the want of sufficient water to wash them. This will cause difficulty of breathing, showing itself in loss of control of their legs, which, if not attended to, often results in sudden death without apparent cause. The habit ducks have of throwing the water about with their heads and bills is induced by their endeavours to wash their nostrils. The drinking vessels should be about two inches deep, so they can drink freely without getting wet themselves, or a pot or vessel of any kind may be sunk

level with the ground, covered with a board with holes in it, large enough for the ducks to put their heads through to fish out wheat and paddy scattered in the water.

The drinking water should never be allowed to run short.

Notwithstanding the saying that "Wet weather is good for ducks," it is the worst thing for ducklings. Newly-hatched ducklings are, in a sense, almost nude, as their down is not much protection against wet, and they are, for the first few weeks, nearly as susceptible to cold and wet as chickens. After that time, however, they can bear far more of either.

Although water seems their natural element, and apparently adds greatly to their happiness, experience proves that ducklings grow quicker and thrive better with only sufficient water to drink. When they are allowed bathing water, the heat absorbed by the cold water weakens the ducklings and retards their growth, and frequently causes cramps and cholera. I wish to impress this fact upon the minds of all people wishing to raise ducks, for most people make a mistake at this point and lose large numbers of young ducks.

Ducklings can stand wet and damp no better than chickens can. They should be kept in a large box or coop with a wooden bottom. On no account should they be allowed to remain on wet damp ground. A large box with half inch mesh wire-netting front will make a splendid coop for the young ducks. A coop

three feet long, two feet wide, and twenty inches high, will be large enough for a hen and her brood of ducklings. On dry days ducklings should be placed out on the grass.

As the ducklings grow large they will need more food and more exercise. For the first three weeks a run six feet long, three feet wide, and twenty inches high, will be sufficient for a hen and six or eight ducklings. After the third week a run 12 ft.  $\times$  6 ft. should be provided. It will do the young ducks good if they are allowed to run about for a couple of hours every day in the garden. The run should be moved to new and clean ground every day. Over-crowding must be avoided and not more than from six to eight ducklings kept together. If more are kept in one place they will be greatly injured.

Ducklings cannot stand the heat of the sun, a large number are killed by sunstroke. They should have plenty of sunlight, but none of the sun's rays. Their coops and runs must be placed under large shady trees, or else covered over with planks or mats. After the ducklings are ten weeks old they will have got most of their feathers, and can be let out into the yard and tank and given perfect liberty. They should be fed three times a day until they are six months old. The more they run about and eat, the larger and quicker they will grow.

Green food is very necessary for ducklings : cabbage, onions and all refuse vegetables should be chopped up and cooked and mixed with their food or given separately.

When vegetables are not obtainable, soft *doob* grass must be cut up into small pieces and mixed with their food.



House for Young Ducks or Geese.

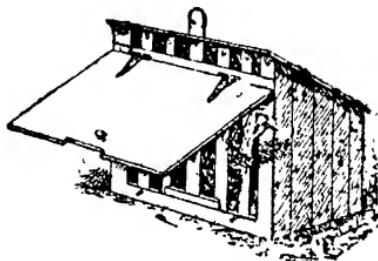
With proper care and attention it is very easy to rear ducks successfully.

**CLEANLINESS** :—In order to prevent the ducklings from getting sick, perfect cleanliness must be observed, and their coops, runs, and water and food vessels kept perfectly clean and sweet. The water given them must be quite clean, and their food stuff must be pure and sweet. It is no economy to feed ducks on rotten and bad grain or vegetable.

## CHAPTER VIII.

### FATTENING DUCKS.

DUCKS will usually eat so as to cram themselves if they can only get at food. The best way to do is to keep the ducks and drakes separate in different coops. A coop for six ducks should be six feet long, eighteen inches wide, and eighteen or twenty inches high. The coop should be made like the following illustration.



Coop for fattening Ducks, Geese, and Turkeys.

When a duck is once placed in a fattening coop, it should never be let out again until the day it is required for the table.

Very young and old ducks will not fatten well. - Ducks between four and six months old are the best to select for the fattening coop. The birds so selected should be in perfect health.

If properly fed a duck will become fat and fit for the table in fifteen days from the time it is placed in the coop. Very often when ducks are kept longer in the fattening coop, they become sick and suddenly die, or else begin to get thin again. As soon as a duck is ready for killing it should be taken out of the fattening coop and put in a tank, or in a small yard and a large vessel of water should be given it to bathe in. When this is done the duck will clean itself, and get rid of the offensive fishy smell that adheres to them when kept away from water.

The best food for fattening ducks is the following mixture :—Wheat-bran, Indian corn-meal, boiled rice, pea-meal, and rice-meal, in equal parts, with some vegetables, and scraps of meat and fat added. The ducks should be fed three times a day, and only as much given each time as the birds will eat up in ten minutes. Let them eat all they possibly can, but never allow any food to remain in the food dish. Make the food quite sloppy and give only a little drinking water after they have eaten, but do not allow any water to remain in the coop.

Indian corn, peas and rice are very fattening. The grain should always be ground and mixed with hot water or else cooked. Dry food or whole grain should never be given. More than six ducks should not be put in one coop, and the males and females should never be put together.

## CHAPTER IX.

### DISEASES OF DUCKS.

DUCKS are not so subject to disease as fowls. If they are properly kept disease will very seldom be seen in a flock of ducks. But when one does get ill, it is very difficult to cure it, very few of their diseases are curable.

1. LIVER DISEASE :—Rather common complaint in ducks. The duck eats well, but gets very thin and goes lame in one leg. No cure. Kill off at once.

2. CONSUMPTION :—The duck will not eat soft food, but will eat Indian corn ravenously, at the same time it will become light in weight. It will cough and will have a slight cold. No cure. Kill at once.

3. INDIGESTION :—Bird healthy in all respects, but will not eat. Give two drachms of salad oil, or a teaspoonful of Epsom salts, and a teaspoonful of poultry powder.

4. CRAMP :—The duck is unable to walk, but otherwise healthy. Keep separate from other ducks, in a cool and shady place, feed properly and keep dry and clean. Rub the legs with Elliman's embrocation. Give a teaspoonful of Epsom salts.

5. EGG-BOUNDED :—Apply a little sweet oil with a feather to the oviduct. The oil should be applied so that it

will go in. Give a couple of teaspoonfuls of Epsom salts in warm water. If in the attempt to pass the egg the oviduct comes down, the duck should be killed as it is no use to waste time in trying to cure it: it will constantly recur.

6. ROUP :—Ducks sometimes get roup. The only symptom visible is a little foam and matter round the eyes, the eyes look as if they were dirty. The disease will attack every bird in the pen if care be not taken. Young ducks are usually attacked. Bathe the eyes with permanganate of potash and alum water, and give the birds a teaspoonful of poultry powder every day. Keep separate and feed on soft nourishing food.

7. STAGGERS :—Young ducklings frequently suffer from giddiness and fall on their backs and are unable to get up. This is caused by sunstroke or being kept in a crowded and confined place. Pour cold water on the bird's head and keep in a cool quiet place.

8. SWELLING UP :—Young ducklings sometimes get air between the flesh and skin. This is caused by over-crowding and bad air. Take a sharp pen-knife and prick the skin and press out the air. Keep the bird in a clean cool place.

9. WEAKNESS OF THE LOINS :—Young ducklings are very subject to this disease. It is caused by bad feeding and want of exercise; keep separate from the other birds, and feed properly, and apply Elliman's embrocation. When young birds are frightened or driven

about they often become injured and get sick in this way.

10. CROWDING :—When ducklings are kept in large numbers together, they huddle up close together and crush or suffocate one another ; they need free ventilation.



## CHAPTER X.

### KEEPING GEESE.

WHEREVER there is a large field or some waste land over which they can run, geese can be easily kept. Green grass forms the greater part of their food, and unless they have good grass lands they will never thrive. Water also is very necessary to their well-being, and unless they have a tank or a large pond in which to swim, they will not be happy and their eggs will not prove fertile.

They are very hardy and very seldom become sick. If kept properly geese will live to a great age and be very prolific. A goose may live twenty years. If geese had to be supplied with all the food they eat, they would not be near as profitable as ducks, but they pick up a large portion of their food when allowed to do so, and are quite profitable to keep.

There are several varieties of geese. Of all varieties the best are the Toulouse, the Embden, and the African geese. The China, or, more correctly speaking, the Indian goose, is not equal to either of the three varieties mentioned above. The Indian goose is a great wanderer and exceedingly noisy and a nuisance when kept close to a dwelling-house. The Embden and Toulouse are very much better in these respects. There is a variety of common English

goose; it is very much smaller than either the Toulouse or Embden, and much like the common Indian goose in size.

There are also what are called the Canadian geese. They look something like the wild geese of India. Then, again, there are the Sebastopol and Gambian geese, these are more ornamental than useful varieties.

All the varieties are very hardy and can be easily reared with ordinary care.

HOUSE AND YARD :—The goose-house should be built in the same way as the duck-house described in Chapter II. The house should be some distance from any dwelling-house as the noise the geese make is very unpleasant to people. Geese will not endure crowding together, their house must be airy and perfectly ventilated. A house at least 12 feet by 9 feet will do for only twelve geese. The floor should be as in the duck's house, properly littered with sand and straw. It does not matter if the house is a little distance from the tank; geese will walk a long distance in search of water.

A yard is unnecessary for geese. They will not thrive in confinement. If they are enclosed in a yard, the enclosure must be a very large one. Every four geese will need at least an acre of land. There should be a pond on the land.

Cleanliness in the house and yard is an absolute necessity. Geese soil their house and yard very much. The house and yard should be treated the same way as recommended for the duck-house. Fowls, ducks, or Turkeys must not be kept in the same house with geese.

## CHAPTER XI.

### THE DIFFERENT BREEDS OF GEESE.

1. THE TOULOUSE :—This goose is noted for its size and good table qualities. It grows to a great size, and a pair will weigh from forty to sixty-five pounds. It is also a very fair layer ; an ordinary bird gives twenty-five



Toulouse Gander.

or thirty eggs a year. The Toulouse does not mature very fast and is not easily fattened. It is of a nice grey colour, with orange legs and beak. It has short legs and a very large deep body. The Toulouse is not very noisy and does not wander far from home.

English geese are very rare in India. Good specimens of the Toulouse will fetch a pound each in England, but in India they may be procured for from ten to fifteen rupees each for breeding stock. Prize birds cost a great deal more.

2. THE EMBDEN :—The Embden matures more rapidly and lays on flesh earlier than the Toulouse does. It grows to as great a size. A pair should weigh from forty to sixty pounds. Its plumage is pure white, its legs

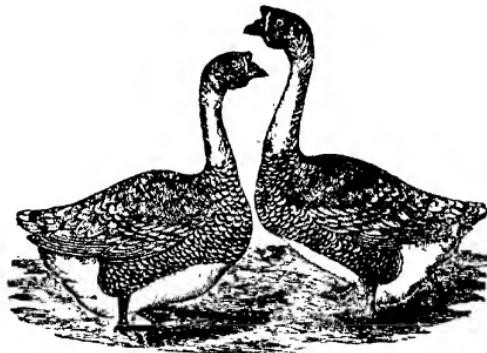


Embden Gander.

a dark orange and bill pinkish yellow. It has short legs and large deep body. The Embden is a very good layer ; some birds have laid as many as eighty eggs in the year.

Good breeding stock will fetch from 20 to 21 shillings each in England. In India breeding stock may be obtained for twenty to thirty rupees a pair. Prize birds will cost more.

3. THE AFRICAN GOOSE:—The African goose is somewhat like the Indian goose in shape and form, but is considerably larger, having a larger head with a large knob upon the base of the bill. It has a dewlap like the Toulouse, but somewhat larger. It is grey in colour, with white on the neck and underpart of the body. It is very hardy and a prolific layer of large eggs. These birds are very rare in India, but I have seen some very good specimens in the Calcutta Zoological Gardens and a few owned



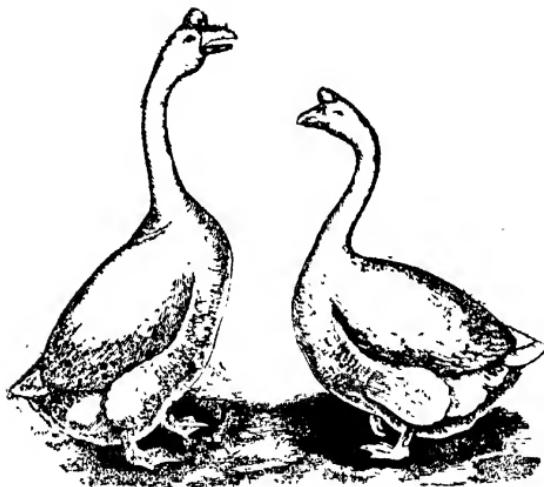
African Geese.

by some rich gentlemen. This bird is very popular in America and is largely bred there.

These birds should be procured from some reliable breeder in America. In India they will do better than the Toulouse or Embden.

4. THE INDIAN GOOSE:—The Indian goose is, I believe, the same bird they call “Chinese Goose” in England. It is found in all colours and sizes, some are grey,

some white, and some grey and white. Their size varies according to the localities they are bred in. No special care has been taken to improve the breed, but wherever they have been properly fed and cared for they have grown to a large size. The Indian goose has longer legs, and a longer and thinner neck than either the Toulouse or Embden, but it does not carry as much flesh. It lays from



Indian Geese.

nine to twelve eggs before it desires to sit, and makes a very good sitter and mother. It is a great forager and wanders long distances in search of food and water. Indian geese are very noisy. These birds are very cheap in India, and can be had from three to five rupees a pair.

## CHAPTER XII.

### BREEDING AND REARING GEESE.

ONLY the largest and best formed birds, of good colour and free from defects, should be selected for breeding. Good sized birds cannot be bred from small sized stock. The larger a goose is the more in proportion it is worth, and it pays better to have first class stock birds, even though they are more expensive than inferior ones. Three geese should be allowed to each gander. In-breeding must be avoided. New blood should be imported every second year.

Geese begin to lay in October and November, and, if properly managed, will keep on laying until April and May.

It is best to allow the goose to sit on her own eggs. When the heavier breeds are kept, it will be well to keep a few common Indian geese to hatch and rear goslings. Some people set goose-eggs under hens; large Langshan and Brahma hens may be used for this purpose, but I prefer the goose or an incubator for hatching, and then allow the goose to have the goslings.

The sitting goose must be looked after and fed regularly. It takes thirty days for the eggs to hatch, and if not watched the goose will not leave her nest during

this time. If she is not taken off her nest and given food and water she will die of starvation. A dish of water and a dish of food must be placed before the sitting goose every day at 8 or 9 o'clock. If she does not leave her nest she must be gently lifted up and placed near her food. After she has eaten she should be allowed to go out on the grass, and to the tank or pond. She may stay away 20 minutes or so and will then return to her nest. This will do both the goose and the eggs good, the goose needs the change and exercise, and the eggs need the fresh air and cooling. The nest should be made on the ground in a corner, in the same way as recommended for nests for ducks. Only as many eggs as a goose can properly cover should be given to her; some will take only nine eggs and some twelve. It is better to give too few than too many. The eggs, if all be right, will begin to chip on the 29th day and food and water must be brought to her nest. The hand should be put under her occasionally and all the shells of the hatched eggs gently removed. Care should be taken not to allow the young ones to remain on the ground during the night, for rats will take them away if they get a chance.

The goslings should be allowed to remain quietly under their mother for 24 hours after they have hatched before food is given to them, when the following food should be given,—Oat-meal, whole wheat flour, ground rice and tender *doob* grass chopped up, in equal parts, mixed with milk, and a little ground turmeric added. This food should be given in small quantities about six times a day. Goslings should be fed in the same way as

young ducklings. A shallow pan with water should be placed near the birds, so that they may drink and wash their beaks, but not get into it. From the first day they should be placed out on the soft *doob* grass under a small covered run. They should be protected from the sun and rain. Goslings are as susceptible to the sun, wet, and damp as ducklings are, and every care should be taken to protect them.

As the birds grow larger they need larger quantities of food. They will thrive on the same quality of food as that given to ducklings, prepared in the same way, but they need a greater quantity of green food. They need a great deal of exercise, and should be allowed out with their mother three or four times a day until a month old. When they are a month old they may be allowed out on the grass with the mother for the greater part of the day, and when between two and three months old they should be allowed perfect liberty, and fed only four times a day. If properly fed the goslings will be ready for the table when six months old.

## CHAPTER XIII.

### FOOD FOR STOCK GEESE, AND THEIR MANAGEMENT.

FOOD :—Stock geese should be liberally and regularly fed but never allowed to grow fat. The best food I have found for them is wheat-bran, ground barley, and paddy with plenty of chopped refuse vegetables. The bird should be fed regularly twice a day, morning and evening, and they should be turned out on grass lands every day from morning until evening. There should be plenty of pure water for them to drink. There should be some nice shady trees on the land on which geese are allowed to run.

LAYING :—The goose-house should be provided with a lot of clean straw for the birds to lay on. Geese generally lay in the morning between 8 and 10 o'clock. If the door of the house is left open, the geese will go in and lay their eggs there. The eggs should be gathered every day and kept in a clean, cool place.

CROSS-BREDS :—I do not believe in cross breeding geese, nothing is gained by it and a great deal is lost. The only cross that should be made is to improve the common Indian geese by crossing with a pure bred Embden, or Toulouse gander, and then mating the geese of this cross with pure bred ganders.

FATTENING :—It is not necessary to fatten geese if they are fed properly and killed when six months old. When fattening, a goose must not be put in a pen alone, otherwise it will fret and become thin and ill. The geese and ganders must be separated and put in lots of four or six to fatten. Young geese will put on fat quickly, but an old one is difficult to prepare for the table.

DISEASES :—Geese are subject to very few ailments, but when they do get ill it is very difficult to treat them. They suffer in the same way as ducks do, and the same remedies may be employed.



## CHAPTER XIV.

### TURKEYS.

In India there are three varieties of turkeys. They are not natives of India, but have been imported, and are now bred very largely by Indians for the market during

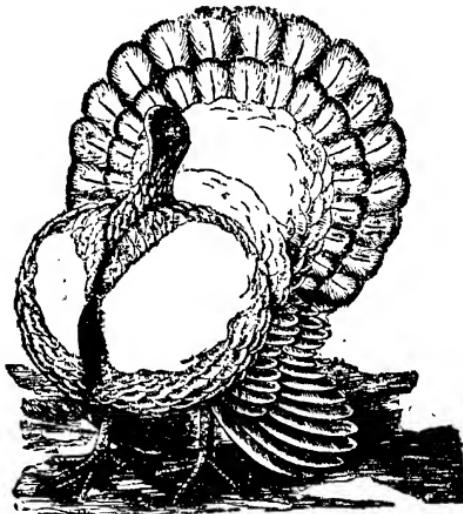


The Bronze Turkey.

Christmas week. Besides the three varieties found in India there are a few others, very large handsome birds, but very seldom seen here.

Breed in turkeys is altogether a minor point ; from a commercial point of view the great thing that is wanted is size, and in purchasing stock it is absolutely necessary to get the largest birds if success is hoped for.

The turkeys ordinarily seen in India are the American or Bronze, the Norfolks or black, and the Cambridge or grey. The bronze are the largest ; the blacks fatten the quickest ; and the greys are medium-sized, but somewhat delicate. There are very few pure bred birds to be found



The Cambridge Grey Turkey.

in India. The blacks and greys are usually crossed with the bronze ; the progeny of these crosses are some bronze, some grey, and some black. It would be a great advantage

if the breeds were kept pure and bred for the highest results.

The White Holland turkey is a very beautiful bird. In America they have also what they call the buff turkey, and the blue turkey, and turkeys of other colours.

The proper weight for a turkey is :—

Cock from 26lbs. to 40lbs.

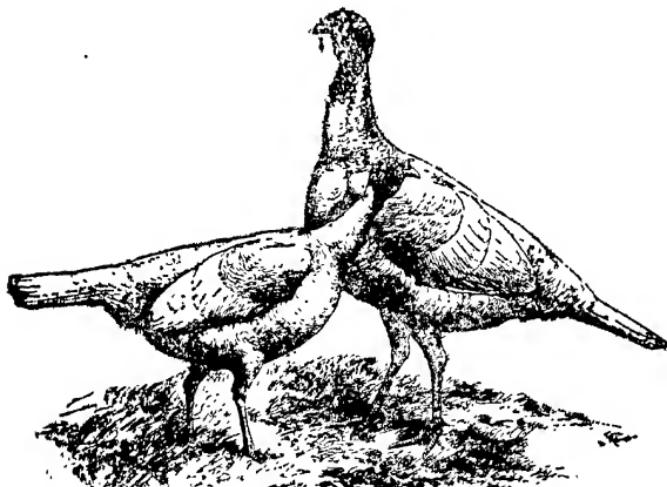
Hen from 14lbs. to 18lbs.

Cockrel from 16lbs. to 24lbs.

Pullet from 10lbs. to 14lbs.

The bronze turkey is the largest, the greys are nearly as large, the whites also are good-sized birds, the blacks are not so large. As I have said before, turkeys are not bred pure in India, the one thing desirable is size and weight. The grey and black may well be crossed with the large bronze turkey, but nothing is gained by crossing the pure white ones. The White Holland turkey is a large and handsome bird and to cross it is only to destroy its beauty. The turkey reaches maturity when three years old, and grows to a great size when properly cared for. Some birds of the bronze breed have weighed fifty and sixty pounds when full grown ; however, thirty-five pounds is considered a good weight. Most of the turkeys you see in India are ill-bred stunted ones, as the natives have no proper method of breeding and rearing them. To them a turkey is a turkey, be it large or small, and they try to get as much as they can for it, but are not dissatisfied if they get a small price for the bird. The price of turkeys depends upon the season of the year. In December good

fattened birds will fetch as much as sixteen rupees for a cock, and six and eight rupees for a hen. During the hot weather and rains you can buy ordinary specimens for five to eight rupees a pair, and good breeding stock for ten or twelve rupees a pair. It is only in December that turkeys can be sold at a profit. If sold at twenty rupees the pair, they will pay to breed largely. If hatched between



Turkeys.

October and February they will be ready for next Christmas and fetch good prices.

**Foob** :—Adult turkeys need food twice a day. In the morning they should be given wheat-bran, White Holland paddy, and finely chopped boiled vegetables; in the evening they should have rice meal, ground barley or

wheat, and chopped boiled vegetables. They should be allowed perfect liberty all through the day. They will pick up a large quantity of their food in the fields and orchard. There should be a constant supply of pure drinking water for them. The water and food dishes must be kept perfectly clean.

HOUSE :—Turkeys cannot be kept profitably in confinement. They are very restless, nervous birds and are happy only when at perfect liberty. If allowed to do so they will roost on large trees at night, but it is best to confine them in a suitable house where they will be secure from thieves and wild animals. A large shed enclosed with wire netting, with wide perches eighteen inches to six feet from the ground, will provide all the protection necessary for adult birds. In the cold weather they should be protected from the cold north breeze, and during the hot months from the hot west winds. This can be done by putting up a mat wall outside the wire netting on the north and west. The floor of the house must be well raised and perfectly dry, and well littered with clean straw or ashes. If allowed to roost on the damp ground the birds will become ill. If the door of the house is kept open in the daytime the birds will come home during the hot part of the day and rest in the cool shade. The door of the house should face south. A house built on the same plan as the duck-house will do very well. One thing should always be borne in mind, *viz.*, that no other poultry should be allowed to remain in the turkey's house. If fowls or ducks are kept in the same house they will all become ill and many

will die. Turkeys are very fond of wandering about hedges and gardens and fields, they greedily devour all the insects, snails, slugs, etc., they can find, and for this reason they are very valuable in a garden. Though a yard or run is not necessary for turkeys, still care should be taken to provide ample shade on the ground on which they are allowed to run. There should be a large number of trees and shrubs under which they can feed or rest during hot days.

BREEDING :--Only large, well-formed, healthy and vigorous birds must be selected for breeding. It is best to select the male and female of the same colour. Turkeys do not mature fast, a cock is not fit to breed from until he is three years old, and a hen until she is two years old. It is allowed to do so they will begin breeding before they are a year old, but it is very advisable to keep the cockrels and pullets separate until the pullets are at least twelve months old and the cockrels two years old. They may then be mated and the eggs of the first year used for household purposes. The second year the eggs may be set, and good strong chickens produced. The question of relationship is of greater importance in regard to turkeys than it is to fowls. If close relations are bred from, the progeny will be weak and difficult to rear. Either the cocks or the hens in the yard should be changed every year or two. If a three-year old cock and four to six two-year old hens are mated together, they may be bred from for three or four years, but if this is done all the young ones from these birds will be closely related and unfit to breed together. If two

lots are kept, then the young cocks of one lot can be mated with the young hens of the other lot, and in this way the breeding stock can be kept in full vigor. But it will need two houses and two separate fields or runs for the two lots of turkeys, and this is not convenient for everybody to do. The easiest plan is to change the cock bird or the hens every second year ; by doing this the young birds of one lot will be fit to mate with the young birds of the next lot, as the relationship will be so distant as not to cause any ill effects. The selection of the breeding stock is of the greatest importance, as your success or failure will greatly depend upon it. The surest way of avoiding close relationship is to purchase the cock from one person, and the hens from another in a different part of the country ; or if you buy two lots, mate the cock of one lot with the hens of the other and *vice versa*.

It is difficult to say how many hens should be allowed to one cock bird. I believe that not more than six hens should be allowed to one cock. I have bred only two hens with one cock and procured very fine chickens. More than six hens will not prove satisfactory, though some people advocate giving ten hens to one cock turkey.

Some turkeys are very pugnacious and vindictive, and often ill-treat the hens ; they will attack children and even grown-up people, and will fight to the death with another cock turkey or game cock. It is almost impossible to keep turkeys with other fowls ; they will do the others and themselves irreparable injury. Turkeys for breeding purposes should be kept by themselves in

another part of the compound, some distance from the rest of the poultry.

REARING :—The turkey hen loves to steal her nest and lay in a quiet secluded place. About the middle of March, generally speaking, the female commences laying ; she indicates this coming event by a peculiar cry, by strutting about with an air of self-satisfaction, and often by prying into out-of-the-way places, evidently in quest of a secret spot for incubation ; for her instinctive dread of the male is not removed by domestication, nor has the male lost that antipathy to the eggs, which is his characteristic in a state of nature. She should now be closely watched and some management is required to induce her to lay in the nest assigned to her. The nest should be prepared of grass and dried leaves ; it should be secluded ; and to entice her to adopt it, an egg, or a piece of chalk cut into the form of an egg, should be placed in it. When her uneasiness to lay is evident, and symptoms prove that she is ready, she should be confined in the shed or place in which her nest is prepared, and let out as soon as the egg is laid. It is generally in the morning that the turkey hen lays, and mostly every other day, though some lay daily, until the number of eggs amounts to from fifteen to twenty. As the eggs are laid, it is as well to remove them (leaving a decoy egg or piece of chalk) until the number is complete ; as they are liable to be broken or to be sucked by rats. They may then be restored to her for incubation. The turkey hen is a steady sitter, and in this respect resembles the wild bird ; nothing will induce

her to leave the nest ; indeed, she often requires to be removed to her food, so overpowering is her instinctive affection. She must be freely supplied with food and water within her reach ; should she lay any eggs after she has commenced incubation, these should be removed it is proper therefore to mark those which were given to her to sit upon. The hen should on no account be rashly disturbed ; no one except the person to whom she is accustomed, and from whom she receives her food, should be allowed to go near her, and the eggs, unless circumstances imperatively require it, should not be meddled with. Turkey-eggs can be set under hens. A good plan is to give the first dozen eggs to a couple of hens, and allow the turkey to sit on the last lot of eggs and when the chicks hatch give them all to the turkey, she will take them all and care for them well.

Turkey chicks are very delicate and unable to endure wet, so great care must be taken to place the nest in a perfectly dry cool place.

The eggs will begin to chip on the 27th day and by the 28th day the chicks will leave the eggs. As in the case of young fowls, the turkey chicks do not require food for twenty-four hours after they are hatched. The turkey mother should be fed on wheat-bran and boiled rice and given some water ; when she has eaten, put her back on the nest, and place the chicks under her. Allow the chicks to remain quiet for about twenty-four hours and then put the turkey and her

chicks in a large box or a run, 6 ft. × 3 ft., with a wooden bottom and place some food for the chicks before them.

The first food given to turkey chicks should be eggs boiled hard and finely minced (white and yolk), with some whole wheat flour sprinkled over it, and some lettuce chopped very small. This should be given for the first day or two, and then the following should be given,— ground rice, coarse ground oatmeal, whole wheat flour mixed with milk, hard boiled eggs, chopped onions and lettuce, white ants, curds, boiled rice, and, after the first week, some finely minced meat. The chicks should be fed every two hours for the first week and only a little given at a time, after the first week they should be fed every three hours. The secret of feeding is to give little and often. If the chicks are allowed to eat too much at a time or remain without food for more than 2 or 3 hours they are sure to become ill. It is necessary to vary the food a great deal. For the first meal early in the morning, give hard boiled eggs finely chopped, with some whole wheat flour and ground black pepper sprinkled over it ; for the second meal, give finely chopped lettuce and onion tops ; for the third meal, give broken dry rice and oatmeal ; for the fourth meal, give whole wheat flour mixed with milk and seasoned with a little pepper ; for the fifth meal, give white ants ; for the sixth meal, give some boiled rice and chopped lettuce ; and for the last meal at night, give some finely minced meat and onions. Give only as much at each meal as the birds will eat up at once, and always

keep the food and water vessels clean. No food should remain on the ground. Lettuce, onions and white ants or minced meat are very necessary for young turkeys. From the second day place the mother and chicks out on the soft *doob* grass under a large covered run, 6 ft. × 3 ft. Great care must be taken to see that the ground is perfectly dry and the weather is fine and warm. During fine weather the chicks may be put out on the grass for three hours every morning and evening, but they must be protected from the heat of the midday sun. Young turkeys must never be allowed to get wet, should a shower threaten they must immediately be put under shelter. On the third day, water should be given in very shallow small vessels, so as to guard against the danger of the chicks getting wet, and should be renewed three or four times a day.

For the first two weeks the chicks should be kept under the wire-netting run out on clean soft grass. The run should be removed twice a day to new ground. After the 14th day the chicks may be allowed to run out with their mother for a short time both morning and evening ; the time may be gradually lengthened until when four weeks or so old they will have perfect liberty to run over the fields with their mother, but must be kept under a covered run during the hottest part of the day and when it is wet.

A quantity of old mortar pounded and some coarse sand should be placed in the run for the chicks. Finely sifted flint grit should be mixed with the mortar and

sand. Douglas' mixture should be added to the drinking water.

Turkey chicks need plenty of fresh air and proper ventilation. If kept confined in a close place they will be sure to become ill.

The mother and chicks must be kept free from lice and the boxes and runs cleaned with kerosine oil and coal-tar.

After the chicks are six months old they should be fed only three times a day, and allowed to run with the adult birds and stay in their house.

With such treatment the young turkeys will rapidly grow into fine large healthy birds.

DISEASES :—Turkeys are very hardy when full grown, and yet they are subject to many of the diseases to which fowls are subject, and they need the same treatment. See *Poultry-keeping in India*.

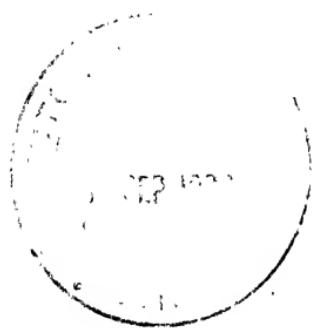
FATTENING :—Turkeys for the table should be separated about six weeks before the time they are wanted. They should be kept in a light, dry, and large room, some straw or clean ashes should be put on the floor, and plenty of sand, lime, ashes and brick-dust placed in the corners of the room. The birds should be fed four times a day on as much food as they will eat. Give them clean water to drink. The best food for fattening turkeys is Indian-corn meal, barley meal, rice meal and wheat-bran in equal parts, mixed together with hot water, and finely chopped boiled potatoes, carrots, turnips, cabbage, etc., added, also some black pepper and a little salt mixed with the rest. Give

the birds as much food as they will eat and then remove the food dish. Give water four times a day. Separate the cocks and hens in the fattening coops.

Only young and healthy birds should be selected for fattening. Birds about 12 to 18 months old are the best.

BLACKHEAD is a serious disease affecting turkeys, and gains its name from the fact that the head of the affected bird assumes a dark blue appearance. It is a very infectious disease, caused by a small parasite that enters the digestive tract, lodging principally in the intestines and liver. This parasite is a small animal organism, resembling the egg of a frog under a microscope, and so minute that several thousands can be placed side by side to an inch. These parasites pass out with the droppings, become disseminated through the soil, and are picked up in the food or water and rapidly infect the whole flock. The first symptom noticed is diarrhoea. The infected bird becomes listless, inactive, and gradually drifts into a stupor. The head becomes dark blue in colour, and the victim soon succumbs. Others become infected, show the same symptoms, respond to no treatment, and another disgusted turkey-raiser goes out of business. Prevention is the only treatment. Attempts to breed immune strains have so far failed. Remembering the fact that the parasites ~~may~~ live in the digestive tract of adult birds for some time, it is well to exercise care when introducing new blood amongst one's flock. When the disease starts, only the most energetic measures are likely to be of any avail. Disinfect houses, yards, or runs, with a 10 per cent. solution of

formalin, phenyle or carbolic acid. As turkeys are usually given a large run, this makes the problem of disinfection a somewhat difficult one. Isolate the sick birds from the well. Medicinal remedies, such as a teaspoonful of Epsom salts or one-third teaspoonful of potassium permanganate may be added to the drinking water. One-half grain of salol may be given in the moist food. Burn all carcases of birds that die from this disease. It will prove a good policy to abandon turkey-raising for some years on ground where the disease has made its appearance.



## CHAPTER XV.

### GUINEA-FOWLS.

The common Guinea-fowl is a native of Africa, where it appears to be extensively distributed. It frequents the open glades and borders of forests, the banks of rivers and other localities where grain, seeds, berries, insects, etc., offer an abundant supply of food. It is gregarious in its habits, associating in considerable flocks, which wander about during the day, and collect together on the approach of evening. They roost in clusters on the branches of trees or large bushes, ever and anon uttering their harsh grating cry, till they settle fairly for the night. The Guinea-fowl does not trust much to its wings as a means of escape from danger : indeed, it is not without some difficulty that these birds can be forced to take to flight ; when they do so they wing their way only for a short distance, and then alight, trusting for escape to their swiftness of foot. They run with very great celerity, are shy and wary, and seek refuge amongst the dense underwood, threading the mazes of their covert with wonderful swiftness.

The Guinea-fowl is a good layer of nice, rich eggs. They lay a larger number than ordinary fowls do. The flesh of the Guinea-fowl is very good eating, and is

considered a very good substitute for game. The Guinea-fowl is of a wild, shy, rambling disposition and is very impatient of restraint. It loves to wander in the jungles, gardens, and fields, hence these birds require careful watching, for the hens will lay in secret places, and will sometimes absent themselves entirely from the farm-yard until they return with a young brood around them. So ingeniously will they conceal themselves and their nest, so cautiously leave it and return to it, as to elude the searching glance of boys well used to bird nesting; but it may always be found from the watchful presence of the cock while the hen is laying. There is one disadvantage in this, the bird will sit at a late period, and bring forth her brood when the season begins to be too wet for the tender chickens. The best plan is to contrive that the hens shall lay in a quiet secluded place, and to give the eggs to a common hen ready to receive them, who will perform the duties of incubation with steadiness. In this way a brood may be easily obtained in June. The young must receive the same treatment as those of the turkey, and equal care. In a short time they begin to search for insects and their larvæ; and with a little addition to such fare as this, and what vegetable matter they pick up, will keep themselves in good game condition, without cramming or over-feeding.

I was once at an Indigo Factory where there were about a thousand Guinea-fowls. They were all over the place and roosted on large trees. The factory grounds were very extensive, containing many large timber trees

and a fine fruit garden. The birds used to wander over the garden and fields, and pick up their food. The eggs were gathered by the factory coolies who were allowed to set them, and received four pice for every chicken they raised. When birds were wanted for the table the planter went out with his gun and brought down as many as were needed.



Guinea-fowl.

Though they are very profitable birds, as they are capable of almost entirely procuring their own living, they are rejected by many on account both of their wandering habits which give trouble, and their disagreeable voice resembling the noise of a wheel turning on an ungreased axle-tree. The males, when pugnacious, are capable of inflicting considerable injury on other poultry with their stout hard beaks. They should not be kept in the yard with other poultry, for they will make the lives of the fowls unendurable.

Like their wild progenitors, domestic Guinea-fowls prefer roosting in the open air to entering a fowl-house ; they generally choose the lower boughs of a tree, or the branches of large thick bushes, and there congregate together in close array ; before going to roost they utter frequent calls to each other, and when one mounts the others follow in regular order ; they retire early, before the common fowl or the peafowl.

Guinea-fowls are very valuable in a garden or orchard as they will keep the place free from snails, slugs, caterpillars, bugs and other insects that destroy fruit and flowers. They will also keep the place clear of frogs and snakes and such like injurious reptiles.

The Guinea-fowl is not so large a bird as it appears, its loose full plumage making it seem larger than it really is—when plucked it does not weigh more than a common fowl. The male and female very much resemble each other ; the male, however, has the casque higher, and the wattles are of a bluish red ; the wattles in the female are smaller and red.

The common variety has a horn, red wattles, white under eye, and white ear-lobe, neck-hackle a brownish grey. The body grey, speckled all over with white spots, the grey running to purplish black in places. Legs dark or slate. Carriage of stern very low ; the profile of back and tail appearing almost like a segment of a circle. In some cases the colour is reversed, and is greyish white, speckled purplish.

There is a breed of pure white Guinea-fowls. The white birds are very pretty. There are also pied and black ones. I have also seen some of a deep blue colour.

SELECTION OF BREEDING STOCK :—The male and females should be as large as possible. Size is of chief consideration. The cock and hens should be of the same colour, vigorous and not under a year old. There should be two hens for each cock, and the cocks and hens should not be related. In order to be sure of this the cocks should be purchased from one person and the hens from another ; or two settings of eggs should be procured, one from each person, and the males of one lot mated with the females of the other. The prices of Guinea-fowls range from two to five rupees the pair, and their eggs for hatching from one rupee to one rupee and eight annas a dozen.

HOUSE :—A large shed securely enclosed with strong half-inch or inch wire-netting is the most suitable house one could provide for these birds. There should be a number of high perches in the shed and the floor should be covered with sand or ashes. The house should face the south. It will be found that they will prefer to roost on the branches of large trees. Adult birds should be allowed to do so, it will not do them any harm, but on the contrary a great deal of good, as they are very hardy and will not be injured by exposure. It is very different with the chicks. They are extremely delicate and need a great deal of care and protection. They should not be allowed to roost on trees until they are full grown, or at least six months old.

**FOOD** :—Guinea-fowls will pick up nearly all their food if allowed perfect liberty. All the additional food they require is some whole grain, such as wheat or paddy in the morning and evening, as they are not large feeders. If a small quantity of grain is scattered on the ground under a tree it will do. A vessel with clean water should be put in some place where they can easily get to it. They will pick up all the animal food, green food and grit they need from the garden and fields.

**SHED** :—It is impossible to keep Guinea-fowls in confinement. They will fly over the highest fence, unless the yard be covered over with wire-netting. They become very restless and unhappy under restraint. It is best not to try to confine even the young ones.

**REARING** :—The hen will lay from 30 to 40 eggs before she becomes broody. She will very seldom lay in a house, but will choose some bush, tall grass, or jungle in which to make her nest. Here she will lay all her eggs if undisturbed. If she is disturbed she will forsake her nest and make another in some secluded spot.

With the exception of the nest egg, the eggs should be taken away daily; for if they are allowed to accumulate and are then removed the nest will be deserted. The birds should never see the eggs being removed, it should be done when they are not near the place. More than one hen will lay in the same nest. Guinea-fowls' eggs should be placed under common hens, two or more hens should be set at one time. The common fowl makes a good mother for the Guinea chicks, and as soon as the

young Guinea-fowls have got their feathers, the adult birds will come and take possession of them, and the young ones will go with them and wander about the garden and orchard. The young birds should be placed in a separate house or large coop during the night. The mother hen should be allowed to stay with the chicks as long as she desires to, the chicks will need the shelter of her wings at night.

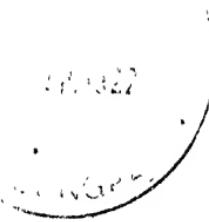
It takes twenty-six to twenty-eight days for the eggs to hatch. If two or three hens are set together, the first ten chicks hatched should be given to one hen, and the remaining eggs given to the other hens ; they will bring up these last chicks. Guinea-fowl chickens are very delicate little birds and need great care : they cannot endure the least damp or wet, nor can they stand much of the sun or east wind. For the first twelve or sixteen hours the birds should be allowed to remain undisturbed under the hen, after that remove the hen and chicks to a large dry box or coop with a wooden bottom, place some coarse sand, brickdust and grit in the box. An egg should be hard boiled and, when cool, minced up very fine, a little black pepper and whole wheat flour being sprinkled over it. It should then be scattered over the sand and gravel in the box. The hen will call to the chicks and they will come out and eat what they want. The hen should be fed separately and given plenty of grain and water. The one thing to be always borne in mind is that Guinea-fowl chicks must be fed every hour and given only a little at a time. If this matter is neglected even for a few hours

the chickens will be ruined. The best food for Guineachicks is hard boiled eggs, finely chopped lettuce and onions, white ants, minced boiled meat, and ground rice and wheat. For the first week they should have eggs, white ants, ground rice and lettuce. During the second week, white ants, lettuce, onions, rice and wheat. After the second week, white ants, lettuce, onions, rice, wheat and minced meat. The chicks will not thrive unless they have white ants and lettuce from the beginning. Water should be given after the third day, and then four times a day. During dry days the chicks should be placed out under a coop on the soft *doob* grass. They should be allowed to remain out as long as possible, but care should be taken that they are protected from the sun, rain and strong winds. The coops should be removed to new ground every day. When the chicks are a week old they should be allowed to run out with their mother, and should be confined as little as possible. The greatest precaution should be taken to prevent their getting in the least wet. I have seen whole broods of chicks destroyed from a single wetting.

The egg diet should be discontinued after the first week, but the lettuce, onions, meat, wheat and rice should be continued until the birds are at least three months old, when they will be large and strong enough to fly with the adult birds and forage for themselves. From three to six months old they should be fed only three times a day on wheat, paddy and other grain.

#### GUINEA-FOWLS.

DISEASE :—Guinea-fowls are very hardy and seldom become ill, but when they do there is very little chance of doing anything for them. The only thing to do with a sick bird is to kill it. They are too wild and timid to catch, and the very effort to catch them will injure the birds. All sick birds should be removed from the flock as soon as possible.



## CHAPTER XVI.

### PIGEONS.

I have no intention of writing a treatise on fancy pigeons. Those who want to keep them for fancy purposes cannot do better than procure J. C. Lyell's book on the subject. My purpose is to treat on pigeons for the table. They are very easily kept and most profitable birds, and it is a great surprise to me that Europeans in India do not keep them more than they do. A pigeon pie, or grilled or curried pigeon, is a dish that should more often grace our tables. Squabs are splendid eating, and only cost a song when reared at home.

Pigeons when properly kept are very profitable, as they find nearly all their food, and raise from six to ten pairs of young ones during the year.

There are many varieties of fancy birds and a number of common ones, but the best for table purposes are the Homer, the Dragoon, the Lucknow or Lahore gola, and the common clean-legged Sharajji. Some people keep the common small gola or wild pigeon, but they are small unprofitable birds. The breeds I have mentioned are large plump birds, quite tame and easily kept.

The common Homer and Dragoon are called Bagdads in Calcutta. They are large birds and are found in all

colours ; some are black, some blue, some pied and some white. A good large pair of these birds can be had from one to four rupees a pair. The people in India are not very careful about breeding for colour.

The Lucknow and Lahore golas are of different shades of blue. They are large handsome birds, carry a lot of flesh, and have no feathers on the feet. These birds



The Homeric Pigeon.

are the best I have found, as they are very hardy and breed fast. Large birds of this breed can be had for from one to two rupees a pair, some are as large as a three month old Chittagong chicken.

The clean-legged Sharajji is larger than either the Bagdad or Lahore gola, but is not so prolific. Good large birds of this breed can be had for one or two rupees a pair.

For breeding purposes, only the largest birds should be selected. I would advise the reader to keep only one breed and to select the best of the lot for breeding and use the small and otherwise defective birds for the table. If only one breed is kept, there will be enough squabs for the table and also some pure bred birds to sell for breeding stock. If there is no intention to sell birds, then the three varieties mentioned may be kept together and allowed to inter-breed. The cross bred birds will be large and hardy and very good for the table.

THE HOUSE :—The building of a pigeon house is an important consideration. I would not advise lofts or boxes for pigeons, for if they are crowded together they will not thrive. They need a properly ventilated and roomy house where they will not be disturbed by cats, crows and hawks. The best one I ever built was as follows : a house twenty feet long and ten feet wide, running north and south ; side-walls nine feet high, the centre supported by posts ; an opening on the north, 6 ft. by 4 ft., enclosed with half-inch mesh wire-netting ; a door on the south, 6 ft. by 4 ft., made with a wooden frame and half-inch wire-netting ; roof made of bamboos and thatch. While the walls were being built, I placed large earthen ghurras (native water vessels) with large mouths (the opening in the ghurra should be ten inches in diameter) in the walls. The ghurras were placed on their sides a foot apart in a row with their necks on a level with the wall, then the soft clay was put between the ghurras until they were firmly fixed into the wall. Six inches of clay was

placed on the wall over the ghurras, and then another row of ghurras was placed on this in the same way as the lower row. In this way I had four rows of ghurras on each side of the wall. These made beautiful nests for the pigeons and had the special advantage of being easily cleaned. Long bamboos were placed in front of each row of ghurras, a foot and a half from the wall; the two ends were built into the walls at the sides. In such a house I had from 50 to 60 pairs, allowing two nests for each pair of breeders. The birds multiplied quickly and I had all we wanted for our table and enough over to give away or sell and so pay for their food.

A thick layer of sand should be spread on the floor of the house, and a large quantity of pounded mortar placed in the corners. The floor of the house should be at least a foot and a half from the ground.

There should be a small trap-door attached to the upper part of the large door, by which the pigeons can come in and go out of the house at pleasure. This trap-door should be open all day, but shut at night.

The food and water vessels should be placed outside of the house in a clean shady place, and the floor of the house should be swept regularly and kept clean. The nests should be cleaned out frequently and if there be any vermin in them a strong solution of phenyle, or some kerosine oil and phenyle, should be freely applied.

Some clean dry hay or grass cut into pieces a foot in length should be placed near the house to enable the pigeons to make their own nests.

The walls of the house and the nests should be thoroughly whitewashed regularly.

Vermin should never be allowed to infest the pigeon house.

**FOOD** :—The feeding of pigeons is a very easy and simple matter. They should be fed twice a day. The best food is the small green pigeon-pea found in the bazar ; it is cheap and the birds are very fond of it, and the young ones thrive well on it. Peas, wheat, small gram and mustard seed are the best grains for pigeons. Paddy, oats, and barley are objectionable, because they frequently injure the crop of young birds, and cause much harm. The grain may be scattered on the clean ground or placed in wooden troughs.

Vessels filled with clean water should be kept near the house so that the birds may drink whenever they desire to do so. A small quantity of Douglas' Mixture should be put in the drinking water.

Pigeons are very fond of salt, and this should be regularly supplied as it is very necessary for their health. The best way to give it is to take two seers of salt, one seer of flower of sulphur, one seer of quicklime and four seers of clean sifted clay, mix the whole up with sufficient water to make a stiff paste. The mixture must be thoroughly kneaded for about an hour, and made into large balls and placed on bricks in the house. The birds will soon learn to go to the balls and eat the salted mud.

**KILLING FOR THE TABLE** :—As soon as the squabs are old enough to leave the nest, they should be killed, for

the table. At this period they are quite fat and tender. Some of the best young birds should be reserved for replenishing the stock.

Pigeons live to a great age. Some have been known to live fifteen and twenty years. I would advise people not to keep birds older than four or five years of age. The old birds should be killed for the table, and the best young ones put in their place.

DISEASES :—If allowed perfect liberty and kept properly pigeons will be found to be hardy, but if kept in close confinement they very soon become sick.

Pigeons are subject to the same diseases as fowls, and need the same treatment. See my book on Poultry-keeping in India. The best thing to do when they are attacked with cholera, roup, canker and liver complaint is to immediately kill the sick ones and burn them to ashes, or else bury them deep at a distance from the house.



## CHAPTER XVII.

### THE PEA-FOWL.

VARIETIES :—The Pea-fowl is found all over Asia and the common Pea-fowl in all parts of India. A very beautiful



Pea-Fowl.

variety is imported from Upper Burma and from Japan and brought to the seaports of India. The colour of this bird is very brilliant and much richer than that of the common species, the neck and breast being a bright glossy green laced with gold ; the shoulder deep blue and the

back rich bronze ; the tail-coverts are very rich green. The colouring of this variety is far superior to that of the other.

There is also a variety of pure white Pea-fowl. They are exceedingly handsome birds.

The common Pea-fowl is hardy, and so also is the Japan bird, but the white ones are somewhat delicate.

The common Pea-fowl can be purchased for three to ten rupees a pair, but the Japan birds will fetch from thirty to seventy-five rupees a pair. The white birds are very rare and expensive.

Pea-fowl are most useful birds. It costs very little to feed them and they are not only ornaments in the park and garden, and provide food for the family, but they most effectively keep the place free of snakes and poisonous reptiles.

The Pea-fowl does not reach maturity before it is three years old, and not until then does the male acquire his glorious plumage..

**HOUSE AND FOOD :**—Pea-fowls love to roost on trees, and it is with great difficulty that they can be induced to enter a house ; only when they have been reared from young chicks and habituated to roosting in a house will they do so. It is best to have a large shed about twenty feet long and fifteen feet wide, built on high posts and enclosed with wire-netting and provided with high perches, for the birds to live in. They should be allowed out in the morning and shut up at night. They should be given their morning food and water in the

shed, and again about sunset should some food and water be placed in their shed. By doing this the birds will be encouraged to take to their house and roost there at night. The Pea-fowl is about very early in search of food, so they should be let out as early as possible in the morning. Pea-fowls like Indian corn, wheat, peas, fruit and vegetables, if therefore some Indian corn and wheat are given in the morning before the birds are let out and some chopped vegetables and fruit in the evening after they come home to roost, it will be all that they need ; any animal food they need will be picked up from the garden and orchard.

Pea-fowls are very timid and rather wild, but if treated kindly from the time they are chicks, they will become very tame and come up to the house and eat out of your hand ; if provoked however, the Pea-cock becomes very savage and will attack a person and do him severe injury with his beak and spurs. He sometimes takes a dislike to a person and will attack him whenever he meets him, and occasionally he will attack children and women. It is best to allow the birds to remain in the garden or orchard. The house for the birds should be built in a quiet part of the garden.

Pea-fowls should never be allowed to remain in the poultry-yard, for they will ill-treat the chickens and small fowls.

BREEDING :—One cock should be allowed for three or four hens. I would advise keeping two cocks and six hens. The hen usually lays her eggs in some secluded

place in long grass under shrubs or jungle; they are very much like the Guinea-fowl about laying,—if they are disturbed they will forsake their nests or else destroy their eggs. It is not safe to allow the Pea-hen to make her nest in the jungle, for she will be attacked by jackals, wild cats, etc. The eggs should be gathered in the same way as Guinea-fowl's eggs are gathered, and placed under common hens, the hen should be a properly feathered and large one. If it is possible to get the Pea-hen to make her nest in her shed and raise her own chicks it would be well indeed, but it will be found almost impossible to get the Pea-hen to raise her own brood in confinement.

REARING:—When setting the eggs under ordinary hens, only six should be given to each bird. The Pea-hen lays from six to ten eggs, they are large and greenish white. The eggs take from 26 to 28 days to hatch and the chicks should be treated in the same way as Guinea-fowl chicks are treated, but no boiled egg should be given them. The first food must be white ants and ground Indian corn. Worms, minced boiled meat, onion tops, lettuce, wheat, rice, ground barley and oats, and fruit of sorts should form the food given to young Pea-fowls for the first three months.

The Pea-cock is of a peculiarly jealous nature and will break all the eggs he discovers and kill all the young chicks he may find, and for this reason the Pea-hen hides her eggs and young ones from the male bird. When the hen sits on her eggs in the house the male bird must

not be allowed to come near her, and he must be kept away from the young chicks.

Pea-fowl chickens need the same treatment about shelter and liberty as do the Guinea-fowl chicks. After the birds are about two or three weeks old they need not be confined at all during the day when the weather is fair ; but they must not be allowed to get wet. They will walk with the hen and hunt for white ants, grubs, etc. They must be regularly fed four times a day until they are six months old and after that twice a day. There is a certain period in the early part of the Pea-fowl's life when it is very delicate. It is when they are changing colour—that is emerging from the chicken feathers to that of adult colour—their first moult.

Pea-fowls are splendid eating.

## CHAPTER XVIII.

### THE RABBIT.

The rabbit is a most useful animal, affording a great deal of pleasure to its keeper and food for the family ;



Lop-Eared Rabbit.

they are easily kept, are fairly hardy and multiply rapidly.

There are a number of different breeds, I will describe the characteristics of some of the best varieties.

**THE LOP-EARED :**—They are large animals and have enormous drooping ears, which often measure twenty-two inches from tip to tip and six inches in width. They have large dewlaps. They are of different colours, black, grey, white, blue, fawn and yellow, also mixed colours,

and often weigh from sixteen to eighteen pounds. The lops are somewhat delicate and their long ears need special attention.

THE ANGORA :—This is a very handsome and useful variety. The colour is pure white with a coat composed of long, fine, fleecy fur, and the eyes pink. They are good



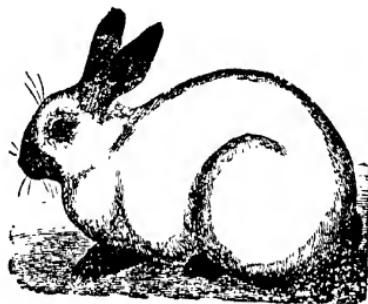
Angora Rabbit.

breeders and attentive mothers, and grow to a good size, but are not so large as some other breeds.

THE HIMALAYAN is a pretty variety. The body is white and the fur short and fine, while the ears, nose, feet and tail are dark nut brown, or black ; the eyes are red, the ears are very short and firm. They weigh from five to seven pounds, and are extremely hardy and prolific.

THE PATAGONIAN RABBIT is the giant of the species, averaging from fourteen to fifteen pounds. Some authorities claim them to be an off-shoot of the Belgian or Flemish.

Their colour is iron-grey, somewhat tawny, and coat rough; they have large, thick, heavy ears, the tips of which are soft and pendulous, usually carried standing out from the head like the letter V. In this variety are found the several styles of lop-ear, namely, half-lop, horn-lop, and oar-lop, which are considered very objectionable.

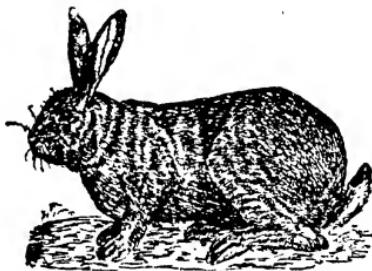


Himalayan Rabbit.

THE FLEMISH GIANT RABBIT is one of the popular large breeds. It is claimed by some that the Flemish is an over-grown Belgian, continued selection and breeding having resulted in the present variety. One will meet more Belgian-Flemish crosses than pure blood of either variety. The Flemish Giant weighs from twelve to fifteen pounds, and in colour is a dark steel-grey; ears about six inches long, carried erect. This variety possesses a large dewlap: eyes dark brown; bull-dog shoulders, and massive hind-quarters; they are quite prolific and hardy.

THE SILVER-GREY RABBIT was originally a near neighbour to the Himalayan, and has become a favourite in

Europe and England. They have improved wonderfully in appearance since their introduction. In colour they run from a bluish brown to a black cinder colour, the ideal rabbit being a dark blue cinder colour, and well silvered with white hairs tipped with black. They are good breeders and are hardy, growing to a good size, often



Flemish Giant Rabbit.

weighing ten pounds at maturity. The Creams and Fawns are off-shoots from the Silver-Greys, and are probably sold as such. They share the popularity their ancestors enjoyed and are favourites in England at present.

**THE BELGIAN HARE** :—This variety is said to have originated in Belgium. They are called Belgian Hares simply on account of their resemblance to the hare. It was for a long time supposed that this valuable rabbit was a cross between the hare and the rabbit. This is not so, and all attempts to produce the hybrid have either resulted in failure or the production of a sterile mule. The habits of the hare differ so materially from those

of the rabbit that the crossing is effected with great difficulty.

The hare is born fully developed, with eyes open, and can run about and eat immediately: while the rabbit comes into the world blind, naked and helpless, and does



The Belgian Hare.

not venture from the nest until from two to three weeks old. The hare nests on the ground, in some sheltered location, never burrowing; while the rabbit always burrows in the wild state and will do so in captivity, if allowed.

The Belgian of to-day shows the improvement attainable by judicious and systematic breeding; foremost in importance is their increased size and prolificness.

To properly describe the Belgian Hare is difficult, especially as to the colour. It is a reddish tan, clear and bright, showing clearest on the top of the neck and shoulders of the animal. Each hair of the animal is tipped with

black and its value is estimated according to the density and distribution of this black marking. The more mottled and wavy it appears, the more points are scored. Starting at the shoulders the colour shades darker over the back and sides, and here the black tipping is shown to great advantage ; the haunches are of a grey colour, but showing a distinct brownish cast, and are usually well marked, with wavy black tipping.

The head and ears have a dark shading, but no distinct tipping. The head is not large in proportion to the body ; it is carried well up and is graceful. The forehead is flat and very prominent over the eyes, giving them a very prominent appearance. The eyes are bold, round, and of a dark brown colour, possessing a wonderfully pleased and contented expression. The ears, about five inches long, set up firm, close together, and leaning slightly back, having an edging of black over the tips and extending well down the edges. This edging is termed lacing and is characteristic of this variety.

The fore-feet and legs are small and delicate, and are kept well under the animal, they are well coloured and free from white.

The belly and the underside of the tail are white, preferably with a brownish cast.

The hind feet and legs are large, strong and powerful ; while generally lighter in colour than the fore-feet, they must show no white on the outside or top ; for the slightest white on the face, legs or body of a Belgian Hare is a disqualification in the show-room.

Shape in the Belgian is, aside from colour, the chief attraction and it is difficult to secure and maintain. The Belgian should be long and slim in build, long and fine in bone, narrow in front, long and lean in the head—in fact, a rabbit calculated to give the observer the impression of speed. This length is to be accompanied by a corresponding gracefulness and symmetry of form. The angular, gawky, stumpy, or mule-like forms being decidedly objectionable.

The English standard for weight is about eight pounds, which could, in this more favourable climate, be made more, say, nine pounds. Specimens are occasionally shown weighing from ten to eleven pounds.

The Belgian Hare is hardy and the young ones can be reared with ordinary care. They are prolific and produce from six to ten at a litter, and will breed from six to eight times a year. They are also very docile.

**THE INDIAN RABBIT:**—The Angora and the Himalayan Rabbit can be had in India. The Angoras are very common, but have deteriorated greatly in size and shape on account of want of proper breeding and care. The Himalayan is not so common, and with careful breeding can be greatly improved. There is also the common rabbit which may be black, red, brown, black and white, brown and white, or grey. It is of no use breeding from the cross-bred common ones except for the market. :

**OTHER VARIETIES:**—There are a number of other varieties of English, Dutch, French, Egyptian, Japanese,

and other rabbits, but none of them are as good as the varieties I have described above.

**THE HARE** :—The hare is very common in India, but I have never known it to breed in confinement. I have tried to cross it with the common rabbit, but have not succeeded in doing so.

**THE RABBITRY** :—The building of the rabbitry is a very important consideration, as the health of the animals and success in breeding depend a great deal upon the way they are housed.

When only one or two rabbits are kept, a good hutch is all that is necessary for them. A hutch six feet long, three feet wide, and two feet six inches high, will do for one rabbit. The hutch must be divided into two compartments. Two feet at one end must be enclosed with boards as a breeding-box, the remaining four feet must be enclosed with half-inch-mesh wire-netting. The roof of the hutch must be sloped on both sides to let the rain run off, and must be made of good strong stout planks, over which should be placed a sheet of tin or some oiled canvas. The bottom of the hutch must be good thick wood, with half-inch holes bored every three or four inches apart, the bottom should slope slightly to one side to allow the water to run off. The compartment at the end should be as dark as possible, with only an opening between it and the other part of the hutch to enable the rabbit to go in and out at pleasure. There should be two doors to the hutch, one at the side enclosed with wire, and one at the side of the dark compartment; these

doors should be large enough to enable a person to clean the compartments properly. Some dry, sweet straw or hay, but not grass, should be placed in the dark compartment. Rabbits delight to burrow in the hay, and they also like the privacy of their dark bedroom. A doe cannot bear to be watched while making her nest and caring for her young. Food and water should be placed in the outer compartment. The hutch should be placed in the sun during the early morning, and under a shady tree in a quiet place during the hot part of the day. Great care must be taken to protect the animals from the great heat during the hot weather, and they should also be protected from wet during the rains.

When a large number of rabbits are kept, a regular rabbit house should be built. Build a house twenty feet long and ten feet wide, side walls seven feet high, centre supported on wooden posts ; the house should run from north to south, the east and west should be walled up with mud, the north and south should be enclosed with fine wire-netting with a door way on the south. The roof may be of thatch. The floor should be raised at least eighteen inches from the ground. The floor may be made of mud, but in order to prevent the rabbits from burrowing in the ground good strong eighteen-gauge one-inch-mesh wire-netting should be laid down three inches under the surface of the floor. I have sometimes used thin corrugated iron sheets for this purpose with very good results. The wire netting should be carried up three feet against the wall and secured with strong and long iron nails.

This will very effectually prevent not only the rabbits burrowing in the ground and walls, but also rats and snakes entering the house. If rats are allowed to get in they will destroy the young rabbits, and do the large ones much damage.

Boxes twenty-four inches square should be placed against the wall in the house for the does to use as their bedrooms and nurseries. Each doe should be allowed one box. Twelve does may be kept in a house twenty feet long and ten feet wide. Earthen *jallahs* may be used instead of boxes. *Jallahs* are to be preferred to boxes as they do not breed vermin so fast. *Jallahs* thirty inches high and eighteen to twenty inches in diameter will do. These *jallahs* should have wide mouths, at least twelve inches in diameter; they must be laid on their sides against the walls in the house, and secured so that they will not move or shake. Clean soft straw or hay should be placed in the boxes or *jallahs*. In such a house the rabbits will live in comfort and health and multiply rapidly.

The bucks should be kept in hutches or in separate compartments in a house. Bucks cannot be kept together, for they will fight and do each other very severe injury.

As soon as the sexes can be distinguished the young ones must be separated. The females should be put in a house by themselves, and the males kept by themselves until they are about four months old when they fight and become troublesome; a few of the best should

then be kept and the remaining ones used for the table or else sold in the market.

Rabbits need to be protected from wet and damp as well as from the great heat of the sun.

Food :—The best grain for rabbits is gram and wheat steeped in water for a few hours. Carrots, cabbage and cauliflower leaves, turnip and radish tops, lettuce, beet-root, green corn, raw onions, wheat, barley, fresh cut *doob* grass and plantains should also be given. Only a small quantity of food should be given at a time, little and often, otherwise it will be rejected and spoiled. The food should be given in wooden troughs, which should be allowed to remain in the house always as rabbits love to eat at night.

Always remember that the fresher the food the better. Trouble is caused by wet stuff being allowed to lie in a heap, thereby steaming and sweating until unfit for use ; at the same time avoid wet green food if fresh and dry food is procurable. Remember that a heap of green stuff in the hutch to be trodden upon and covered with filth, is to my idea an unpardonable condition of affairs, and is often the cause of serious trouble. Nursing does should have as much as they can eat ; green corn, carrots, fresh *doob*, etc., are excellent milk-producers and should be given with sound gram, barley, and oats ; give cool fresh water four times a day.

The food vessels must be securely fastened in their places, or the contents will be upset and wasted.

There is a kind of plant the natives call *Akra* in Hindustani, of which rabbits are very fond, it grows wild

and very profusely on the banks of rivers and tanks and on low-lying land. Rabbits will eat the leaves and stocks greedily, and thrive well on it. It should be gathered fresh every day as it very soon turns black and begins to smell. If kept in water it will last good for a day.

**WATER** :—Rabbits should be allowed water to drink three times a day, and oftener during the hot weather. The water vessels should be perfectly clean and the water quite pure. There is no sense in the popular belief that rabbits should not be allowed water. The water vessel should be removed after the rabbits have had a drink.

**CLEANLINESS** :—It is very necessary to keep the house and hutch absolutely clean and sweet. The least uncleanness will cause disease among them and breed vermin in the house. The dark chamber should be cleaned out every other day or at least once in four days, and the bedding changed. This should be done while the rabbit is in the other compartment. She must not be disturbed while in the dark chamber. The outer compartment of the hutch must be properly cleaned and washed with phenyle and water and then dried. The dark chamber should never be washed, but must be properly swept every day and phenyle sprinkled on the floor. The boxes must be thoroughly cleaned, and the straw changed every other day. The earth for the surface of the floor must be removed and renewed every month or so. No decaying vegetables or food-stuff must be allowed to remain in the hutch or house.

**BREEDING:**—Success in breeding depends a great deal on properly mating the rabbits. If wanted for pure breeding and fancy, then the different breeds must be kept separate and only the best specimens of each breed mated together; but if wanted only for table use, then some of the breeds may be mated with larger and better breeds to give size and stamina to the progeny. The best results are obtained by keeping the breeds distinct, and mating the best females with the best males of the breed. If inferior specimens of any breed be bred from, the young ones will be inferior and the stock soon deteriorate. Only the largest and most perfect females must be mated with the largest and most perfect males. If this is done the progeny will be more likely to be large and perfect. Not only must the buck be a large one, but the doe must be large and good.

One buck will be able to serve from six to twelve does. When the buck's services are required, he should be put in the doe's hutch and allowed to remain with her a couple of days; he must then be removed and put back in his own hutch. On no account should the buck be allowed to remain with the doe for any length of time. If he is left with her after she has been served he will continue to worry her and do her serious injury.

After the doe has been with the buck she should be placed in the hutch or house where she is expected to rear her young ones. She must become quite used to her new quarters and make her room comfortable and ready for her coming little ones; during the whole period

of pregnancy she must be kept perfectly quiet. If she is disturbed or excited at all she will either kill or neglect her young ones when they are born.

The period of pregnancy is thirty days. Three or four days before the young ones are expected the doe should be provided with a lot of clean dry soft straw. With this she will make her own bed and prepare the place for the young ones, after she has made the bed she will cover it with fur which she will take from her own body.

During pregnancy the doe must be fed and watered regularly and the day the young ones are expected some extra grain and green food should be left in the hutch, and a supply of fresh water must be kept in the hutch. At the time of kindling the doe seems to have an unusual thirst, and in her frenzy for water she will destroy her young ones and appease her thirst with their blood. By giving water at this time it will prove beneficial to the mother and save the lives of the young. The doe will need extra and nourishing food at this time. Some milk and bread, whole barley, wheat, carrots and *doob* grass must be given to the animal.

Young does sometimes kill their first litter or neglect them ; this happens from their becoming excited and possibly frightened, but probably it will not occur with the second litter if properly managed.

The doe must not be disturbed nor the young ones touched for three days after they are born, then carefully remove the doe from the hutch by giving her a

carrot and inducing her to take a run for an hour in the room ; when the doe is not present examine the young ones, and remove any that may be dead or weak ; leave only about four or five for her and remove the rest. Do not disturb the nest and do not allow the mother to see you handling her young. After an hour get her back to her hutch, and she will begin to nurse her young ones.

A doe cannot bear to be watched while making her nest or caring for her young. When she wishes to attract attention to her babies she will bring them of her own accord to the front of the hutch. When first born the young are helpless, naked, and blind, and demand their mother's tenderest care. If they are handled while very young their parent sometimes deserts them, and is at all times greatly distressed by the attention. It is best then to leave the young rabbits alone until the mother shows you that she considers them old enough to be treated like herself. While the doe is nursing her young she requires extra food, for the young grow fast, and if the doe is not well cared for, she in turn cannot do justice to her young, and they will have slobbers if not sufficiently nourished.

In two or three weeks the young will be moving about the hutch ; from now until weaned is the critical time in their existence. With the food and care recommended they will thrive. When about two months old they should be taken from the doe and allowed to run on the rabbitry floor ; the doe being started for another family. Exercise is very necessary for their proper growth and health.

The young ones should be fed on milk and bread, soaked gram, wheat-bran, carrots and tender fresh vegetables, and *doob* grass.

Separate the sexes when taken from the doe, and at four months of age separate the males, as they get quarrelsome and the weaker ones are completely ruined in their fights. Do not breed a doe under eight months of age, and not over four times a year ; by this arrangement she will raise strong, healthy litters until four or five years of age. For breeding purposes an old buck and a young doe beget the largest young.

A male should not be bred from before he is one year old, nor a female before she is eight or nine months old.

**DISEASES** :—If rabbits are kept in the way mentioned above they will thrive and do well. It is much better to prevent disease than try to cure it. When you see your rabbit sitting and moping in a corner paying no regard to his meals, etc., you may rest assured that it is not in good health and you should immediately try and find out the reason and apply the remedy.

I will mention some of the diseases rabbits are subject to and the remedies that may be given.

**LOSS OF APPETITE** :—Caused by cold or indigestion ; give the following medicine,—one drop of tincture of Nux Vomica in half a pint of drinking water. The next day give one drop of tincture of Aconite in half a pint of drinking water. Keep giving these two medicines very other day alternately. Give the animal the water

with the medicine every three hours. Feed on milk and bread.

2. BLINDNESS IN YOUNG :—Sore eyes and blindness is caused either by injuries to the eye by projecting nails and wire, and also by filth in the hutch or house, bad feeding, impure water, chills and cold.

Give one drop of tincture of Belladonna in half a pint of drinking water; also tincture of Aconite as above every alternate day. Bathe the eye with a weak solution of alum and water—a teaspoonful of ground alum to a pint of water; keep in a cool, dry place.

3. CANKER :—Canker in the ear, or any other part of the body, is very difficult to cure. Unless the animal is a very valuable one it should be destroyed and buried.

4. COLIC :—Caused by indigestion or constipation. Give half a teaspoonful of Epsom Salt dissolved in warm water every day until the bowels are freely moved.

5. CONSTIPATION :—Caused by dry food, want of proper exercise and chills. Give Epsom Salt and stop all grain and dry food, give only onions and green food.

6. DIARRHœA :—Caused by excessive heat or chill, a fright, sour food, too much green food, impure water, or dirt. Give some cholera medicine. I have found tincture of Veratrum Album, one drop in half pint of water, very effectual. Feed on dry gram, oats, and barley, but no green food until cured, except lettuce.

7. DROPSY :—The body swells and the animal refuses food: remove to a large room or enclosure and allow it to run about; feed on dry food.

8. EAR ACHE :—Caused by dirt and wax in the ear. Clean out the ear, and gently syringe with warm water, and then apply some tincture of Aconite or Hydrastis. Avoid catching by the ear.

9. FITS :—Kill the animal.

10. SORE HOCK :—Caused by dirt, injuries, damp and thorns ; wash with warm water and apply tincture of Hydrastis, or Elliman's Embrocation. Keep clean and feed properly.

11. VERMIN :—Caused by uncleanness or bad health ; apply Keating's Insect Powder freely, and wash the hutch with strong phenyle and water.

12. MANGE :—Isolate the animal and apply the following ointment :

Cocoanut Oil ..	..	8 ounces.
Spirits of Turpentine ..	..	4 ounces.
Camphor ..	..	1 ounce.
Flower of Sulphur ..	..	4 ounces.

Dissolve the camphor in the turpentine and add the cocoanut oil and sulphur, and apply every day to the affected parts. Give some sulphur in its food, and a good supply of green food and water. The hutch must be thoroughly cleaned and removed from near other hutches.

13. PARALYSIS :—Kill the animal.

14. RED WATER :—This disease is often called bloody urine. This is a disease of the kidney and needs special care. Give tincture of Aconite one drop in half pint of water. Also tincture of Arnica in the same way as Aconite

Feed on milk and bread and give clean water. Mild exercise and plenty of fresh air are very necessary.

15. VENT DISEASE :—Caused by injury by the buck or bite from rats or insects, or injury from nails or thorns. Separate the animal and wash the part with phenyle and water, and apply iodoform and vaseline twice a day. If taken in hand at once, a cure will be effected, but if the sore has spread and entered the vent it is best to destroy the animal. Even after the doe is cured she should be kept separate from the buck for six months.

16. SNUFFLES OR INFLUENZA :—In the English breeder's hutches, snuffles is almost always present and is invariably fatal if not promptly attended to ; the Indian fancier is often troubled by the disease. Just as a man neglects his own person when suffering from a cold, so is the person apt to neglect the rabbit. But a cold is always a matter of concern in a rabbit, and should receive immediate attention. The symptoms of snuffles are sneezing, moist nostrils, which in a few days become thick and filthy, the animal refuses food, and its coat becomes rough and disordered, giving every sign of illness and discomfort. The sick rabbit must be isolated immediately. Give the animal tincture of Aconite one drop in a quarter of a pint of water, also Liquor Arsenic in the same way. The medicine should be given four times a day. Wash the nose and mouth well with Condy's Fluid, and water, also the fore-legs and feet two or three times a day, swipe dry and put an extra quantity of fine hay in the hutch, keep in a cool airy place and feed with stimulating foods.

Where this course does not effect a cure, the following prescription is recommended, which must be used in an ordinary vaporizer. Fill the vaporizer about two-thirds full of boiling water, into this pour  $\frac{1}{2}$  an ounce of soluble Sanitas Oil, one teaspoonful of oil of Eucalyptus and ten drops oil of Camphor, place the top on and light lamp underneath. Place the rabbit in a small hutch, covering up with old sacks to prevent the escape of the steam. Insert the spout of the vaporizer into the lower part of the hutch allowing the steam to enter. By this treatment it is intended to have the medicated vapor reach the affected membranes by inhalation. Treat in this manner for ten or fifteen minutes, care being taken that the invalid is not suffocated by the operation ; after treatment leave the rabbit in the hutch for half an hour, then remove. It is said that three operations generally effect a cure.

17. APOPLEXY :—If not protected from the excessive heat in hot weather a number of the rabbits will die. Nothing can be done for a rabbit when thus taken ill. The best thing to do is to adopt preventive measures. Place the hutch in a shady cool place, where there is plenty of fresh air, give plenty of cool water, and green food, but stop the gram and other stimulating food.

18. FATTY DEGENERATION :—This is caused by over-feeding and want of sufficient exercise. Rabbits should be regularly and properly fed, but never allowed to grow very fat, unless wanted for the table. Breeding stock should not be fat, but kept in good condition, and allowed regular and sufficient exercise.

19. INJURY TO THE HEAD :—The rabbit must be handled very gently. If caught or taken up roughly the rabbit will be fatally injured. When caught or taken up it ought to be caught and lifted by the ears ; catch it by the ear and when lifting place a hand under the animal so as to prevent injury to the ear.

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